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UNITED STATES DEPARTMENT OF AGRICULTURE

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THE FARM FORUM RELEASE Tues. Jan 1, 1929.

NOT FOR PUBLICATION

Poultry Meeting No. 14: Certified Poultry Flocks

ANNOUNCEMENT: Come to order! --- Let's start the New Year right. I take it every member of this Farm Forum wants to be a better poultryman. We all want to produce better poultry this year. Certification and accreditation work is one of the things which is helping along that line. For that reason, we have asked a specialist of the U.S. Department of Agriculture to tell us about it -------- Go ahead, Mr. Inspector ----------

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My friend, the Chairman here, is right.

Certification or accreditation work should produce better poultrymen, as well as better flocks of poultry.

The bigger the poultry business gets, the more important this work becomes ----------

Of course, I take it, you all know what this work is. Accreditation is a system of inspection. It is a system of inspection whereby breeding flocks are certified as coming up to certain qualifications as to the quality of the chickens or other poultry and their health.

You can't have healthy chickens, unless they are raised under healthy or sanitary conditions. So that inspection includes the conditions of management.

You all realize --- or, at least, I hope you do ------ that health is the foundation for success in the poultry business. It's rather hard to get exact information about losses on poultry farms due to disease. However, you know, from common observation, that the losses run into big figures.

At the Department of Agriculture we have figures on the losses from a large number of demonstration flocks in six States. They show that losses in the chicks run from 12 to 35 per cent.

An mind you, those demonstration flocks were among the best

flocks in the different communities. Those flocks were mostly owned by the most progressive farmers. Why, in egg-laying contests, where the hens are kept under good management, the losses in the laying flocks are rarely less than 10 per cent. They often run over 20 per cent.

Such big losses, and they are probably bigger in the average flock, are the reason for accreditation work. The purposes of accreditation are to cut down the losses in the poultry business and to give better hatching and brooding results. It also produces better quality chicks. Better chicks should result in better egg production and better breeding stock. -- You understand, of course, that this accreditation work deals primarily with the breeding flocks; with eggs and chicks from those flocks, and with the hatcheries. --------(As if interrupted from audience) Ah, we have a question over here on the right.----- Now, what is it? ------- "Just how does it work?"

Well, accreditation provides for a careful culling of breeding flocks by capable inspectors. It provides for getting rid of diseased birds, and birds which don't conform to certain production and certain standard requirements.

The inspector puts a band on the birds which come up to the requirements. Those bands are sealed on. He also inspects the poultry houses and yards to see that they are kept sanitary, Sanitation in the houses and yards is one of the most important ways of keeping down disease, you know. He sees to it that the flock is being managed and fed properly. He makes those inspections periodically, but the flocks are subject to inspection at any time.

Approval is also given to hatcheries which are kept sanitary and which use eggs from accredited flocks only. It pays a poultry keeper to buy chicks of good quality which are produced under good conditions. Of course, the average poultryman will lose some chicks even with the best of management, but he can't afford to buy chicks out of breeding flocks which are diseased, if he can avoid it.

Unfortunately, there are some poultry diseases, such as bacillary white diarrhea, where the breeding stock seems to be perfectly healthy; but where the infection shows in a heavy loss of chicks. To get rid of that disease, all the breeders in the flock must be given a a blood test, and all those which react to the test must be culled out.

At accredited hatcheries, the size of eggs is checked. That's an important thing. Eggs for hatching should weigh at least one and seven-eighths ounces. And they should all be about the same size, and shape, and color.----------(As if interrupted from audience)--- What say? ---- "Who handles the inspections?"

Well, accreditation work is handled by responsible State authorities. They hire the inspectors properly qualified to do the work.

The work is usually under the control of either the State College of Agriculture or the State Department of Agriculture. The agency in charge of the work, you see, differs in different States. The extent of the work also varies a great deal in the various States. --------(As if interrupted from audience) What? - - "Who pays for it?"

Why, the work is largely self-supporting. The costs are paid by the owners of the inspected flocks --------- "What do they get out of it?" did you ask?

They get their flock carefully selected and they get considerable publicity. That helps them get better prices for their breeding stocks, and for their hatching eggs and day-old chicks.

At present much of the accreditation work is confined to the general improvement of stock and sanitation. But that sanitation, in many cases, doesn't include the elimination of such diseases as require a blood test to detect. Such sanitary measures should be included.

If all the States would use uniform regulations and terms, the progress of accreditation work would be greatly improved. For day-old chicks, hatching eggs and breeding stock shipments are not confined to the State in which they originate. Day-old chicks, hatching eggs, and breeding stock enter extensively into interstate trade.

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ANNOUNCEMENT: Next week at this time we will follow our eggs to market and see what happens to them. In the meantime there will be five other Farm Forum meetings, dealing with other farm subjects. We have these Farm Forum meetings every day except Saturday and Sunday.

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THE FARM FORUM Wednesday, January 2, 1929.

Crops and Soils Meeting No. 14: Know Your Seed

Speaking Time: 8½ minutes.

ANNOUNCEMENT: The Farm Forum will come to order! ---- Let's get down to business. This year we want to make our farming just as certain as we can. We want to make some money farming this year. Today a seed specialist from the U. S. Department of Agriculture is going to tell us one way to insure our crops ---- All right, Mr. Seed Specialist.

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Farmers, like other business men, want to make a profit.

And, just as it is with other businesses, so it is with farming. The success of the business depends largely on the judgment and skill of the man who runs it.

Of course, in any business, there are a lot of things more or less beyond the control of the manager. Between seed time and harvest is usually a pretty long time; six months or more. A lot of things can happen to the crop. Many of those things even the best farmer can't always control.

But there are some things all farmers can control. Your capital, invested in your land and your machinery, is under your control. You decide yourself how it is to be used. Your labor is under your control. The use of fertilizer is under your control.

You even have some say so as to the character of your soil. That is, its present condition is largely due to the judgment and skill which you have used in farming heretofore.

But of all the controllable things in making a farm crop, the selection of seed means the least added cost and, at the same time, gives the greatest assurance of success if it is done carefully.

As you all know, with most crops, there is a comparatively short time in which seed may be planted with reasonable hopes of a crop. Seed put into the ground too late -- even a few days too late ---stand a poor chance of producing a profitable crop. In the case of truck crops, time is especially important. A week's difference in the date of maturity often determines whether the crop is a success or a failure.

Of course, if you plant dead seed, there is bound to be a delay. ---- --------- What's that? -- Did I hear somebody say, "Nobody is going to plant dead seed if they know it?" --------

Maybe not, --- but the fact remains that a lot of dead seed is planted. Sometimes the lack of a stand due to dead seed is blamed on bad weather conditions. Yes, sir, I've known that to happen, the land to be planted a second time to the same seed. In fact, you can use up so much time that way, that the season will be so far advanced, that you may have to change crops. Or, in extreme cases, you may have to let the field lie idle. That would be just too bad! ---

However, it is easy enough to guard against that sort of thing. You can guard against that by making a test of the vitality of the seed before planting. It doesn't cost much to make such a test. And by making the test, you may save time and a lot of work. Making such a test, may even save you from a complete crop failure. And don't forget, the cost of planting dead seed is just as much as that of planting live seed.

It is most important of all, in selecting seed, to take every possible precaution to get the varieties or strains best suited to your locality. ----- (As if interrupted) --- What say? ---- Yes, I said "most important of all" -----

Sure, planting unadapted seed is even more disastrous than planting dead seed. With such seed, you have no chance to right your mistake after planting. You couldn't tell they were not suited from the early stages of growth. In the early stages they would not be distinguishable ----- (As if interrupted) ---- All right, over here on the left, did you have a question? --- What? ---- "Where can you get them?"

Why, there are a number of ways you can get seed suited to your needs. The State Agricultural Colleges and Agricultural Experiment Stations have carried on long series of plant breeding experiments. They have made a great many selections in trying to develop disease-resistant strains and hardy strains, and high-producing varieties and varieties adapted particular uses. They have also made extensive experiments with seed treatments which lessen the chances of loss from fungus infections of the seed

You can get all that sort of information through your County Agent. Or, in case you don't have a County Agent, you can get the information by writing direct to the State Agricultural Experiment Station.---- (As if interrupted) ---"That doesn't answer your question," you say? --- "You want to know the best place to buy seed," is that it?

Well, generally speaking, you'll find the best adapted seed is that grown comparatively near to where it is to be sown. I'd therefore advise you to buy local-grown seed, when you can. Next best, is to buy in your own State, so you will have the protection of your State Seed Law. Buy from a reliable organization, an organization that will be interested in satisfying its customers, so they will come back again and send their neighbors.

And do your seed shopping early. It is always advisable to get your seed while seed stocks are full and the particular kind of seed you want is most likely to be on hand. Another thing, by shopping early for

seed, you can examine it before you actually buy. It is always best to know whether the seeds will grow and how many weed seed are present, especially the seed of any serious weeds.

If you don't know weed seed yourself, send samples to the State Agricultural Experiment Station or to the Seed Laboratory of the U. S. Department of Agriculture, at Washington, D. C. Ask for a purity and germination test.

Now is the time to make plans for this year's planting needs. Now is the time to consult the County Agent or to write to the Agricultural Experiment Station about the best crops suitable to this locality and about where to get the best seed.

A little care, a little forethought, a little time exercised now will locate the right kind and quality of seed. Such seed may cost a little more, but the money will be well spent.

If you know the seed you sow, you will have gone a long way toward insuring your crop.

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ANNOUNCEMENT: Tomorrow will be dairy day in our Farm Forum. Friday we will talk about farm budgeting. As our speaker just said, now is the time to make plans for the year. That's what the Budget is, a complete plan --- But we'll hear more about that Friday ----------

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THE FARM FORUM RELEASE Thur. Jan. 3, 1929.

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Dairy Meeting No. 14: Clean Cows and Stables

Speaking Time: 8 minutes

ANNOUNCEMENT: Many members of our Farm Forum have resolved to produce more and cleaner milk this year. But here in the winter time is the hardest time to keep the cows and the barns clean. For that reason, we've asked our Farm Engineer to give us a few pointers on how to do it ---------- Gentlemen, the Farm Engineer ----------

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Yes, that's right. In the spring, in the summer, and in the fall, cows usually spend a good bit of their time on pasture or in the feed lot. Here in the winter it is different. In most places, dairy cows are stabled during the greater part of the winter. Of course, if you don't take care to prevent it, the barn will get dirty. And it is mighty hard, I'd say, to produce clean milk in a dirty barn.

Now then, what can we do to keep the barns clean? What can we do to practically eliminate the barn and the bodies of the cows as sources of milk contamination?

Let's start with the cows themselves. Daily grooming of the cow makes her more comfortable. And it makes it easier to produce sanitary milk.

I suppose most of you clip the long hairs off the udders, and bellies, and flanks of your cows with either hand or power clippers. That helps a good deal in keeping the cows clean ----- But, please remember, to do the grooming at least half an hour before milking time, so the dust will have time to settle.

Just before milking, thoroughly clean the udder of each cow. If it is badly soiled, wash it with clean, tepid water and a clean cloth. Otherwise use a clean damp cloth, wrung out of clean water, to wipe off the loose hairs, scurf, and dust.

And, of course, soiled bedding should be removed and the cows supplied with plenty of clean, dry bedding; especially where concrete platforms are used.

The Department of Agriculture has issued a bulletin on "Care and Management of Dairy Cows" It is Farmers' Bulletin No. 1470-F

Don't let dust, and cobwebs and chaff collect around the dairy stable. Such dirt is apt to be blown into the milk during milking. And, of course, keep the floors and gutters clean. If you have running water, use a hose and scrub the floors. At any rate, scrape and wash them so manure won't accumulate.

Always clean out the gutters the first thing in the morning, and the last thing at night. -------(As if interrupted from audience) What? ----What is the question? --- "How deep?"

Eight inches deep. Manure gutters should be sixteen inches wide and eight inches deep next to the bedding platform. They should be seven inches deep on the side nearest the back wall. You can get a bulletin on barn building, too. I have the number right here. Farmers' Bulletin No. 1342-F on "Dairy-barn Construction"

And, as I was saying, the gutters behind the cows should be concrete. Concrete floors are most popular, They are easy to keep clean. But if you have concrete gutters, you can use other materials for the floor, such as cork or creosoted blocks.

And while we are on the subject of the barn itself, let me remind you that cow barns should be properly lighted and ventilated. There should be at least four square feet of window glass for each stall or stanchion. And the windows should be evenly distributed so that all parts of the barn will get light equally. If you hinge the windows so they can be tilted, you can let in the air without causing draughts on the cows. However, where barns are kept closed on account of cold or bad weather, it is always best to have a ventilating system which changes the air automatically. In that way, you can make sure of always having fresh air. The principles of dairy-barn ventilation are explained in detail in Farmers' Bulletin 1393-F.

Some folks don't seem to realize the importance of having walls, and floors, and ceilings of dairy barns smoothe and cleanable. But whether you use cement plaster or tongue-and-grove lumber, you should paint it or whitewash it at least once a year --- and oftener if it needs it. -------(As if interrupted) -- Did you, there on the aisle -- did you have a question? ----- What? In the whitewash?

No, you don't need it. I know, many whitewash formulas call for such things as salt and skim milk in addition to the lime and water. But lime and water is all you need. Ordinary hydrated lime mixed with water makes a good whitewash. Or quicklime--what people ordinarily call lump lime-- can be slacked with a little water and used in place of the commercially prepared hydrate of lime. But, if you use lump lime, be sure to use only freshly burned lump lime. Discard any that is air-slacked.

Whitewash, you know, won't stick when it is made from air-slacked lime. ---------(As if interrupted) What say? --- "brush or spray pump?"

Either one will do. You can put it on thicker with a brush. Sometimes one coat with a brush will give as good results as two with a sprayer. Spraying, of course, is quicker; but it smears up the floor and equipment more. No matter which way you put the whitewash on, you will save time in cleaning if you cover the equipment with old bags or something of that kind. And if you keep the floor wet while you are whitewashing, the whitewash that id dropped won't stick so tight. You can get it up readily with water and a brush or a broom.

However, most of you know how to keep the cows and barns clean. I'm just telling you this, to remind you not to get careless. It is good business to keep the barns clean. Clean barns are desirable for the production of clean milk. However, there are a lot of things about producing clean milk, which we haven't had a chance to mention. There is a bulletin on that too. It is Farmers Bulletin No. 602-F and is called "Production of Clean Milk". You can get it by writing for it.

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ANNOUNCEMENT: For the benefit of those who didn't get the numbers, we will repeat. "Production of Clean Milk" is Farmers' Bulletin No. 602. "Principles of Dairy Barn Ventilation" is Farmers' Bulletin No. 1393. "Dairy Barn Construction" is Farmers Bulletin No. 1342. And "The Care and Management of Dairy Cows" is Farmers' Bulletin No. 1470. You can get any of these bulletins by writing to Station _____ or by writing direct to the United States Department of Agriculture, for them.

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THE FARM FORUM RELEASE Fri. Jan. 4, 1929.

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Economics Meeting No 5: Farm Budgeting.

Speaking Time: 9 minutes.

ANNOUNCEMENT: All right, let's start the meeting.----- This year we want to make this Farm Forum still more valuable to our members----- This is the time to take stock of last year's farm business, and lay plans for this year. Today we have with us a specialist from the U.S. Department of Agriculture. He is going to put his head together with ours and think over this year's plans ----- Go ahead, Mr. Specialist --- Start thinking aloud----

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Yes, farming is a thinking job. And this is the time of the year to take stock of last year's business. Look back over the successes and failures. Compare the results you got with the results you expected at the beginning of last year. Then lay your plans and make a budget for this year.

By "budget" I don't mean just alloting certain amounts of money to cover certain items of expense. A farm budget is a whole lot more than that. It is a plan, worked out in detail, for using the land, and the labor, and the equipment, and everything else you use in running your farm business. It not only includes what you expect to spend, but what you expect to get from your crops.

-----Oh, yes, I know -- It's quite a job -- and you can't just sit down and do it in five minutes. You see, the real idea in working out a farm budget is to find the combination of crops and livestock best adapted to your farm and the conditions this year ------(As if interrupted) How's that? ----- "How can you tell what conditions will be?"

We'll get to that in a couple of minutes ---- Let's first decide what we'll include in our plan. Then we'll see what information we need. And then, we'll see where we can get that information.

Let me say right here, however, it is always best to make several budgets or plans for different combinations of crops and livestock and then pick the one to follow.

First work out a budget according to the system you are using. Then, work out budgets for different combinations of crops and livestock which seem feasible. The plan you select for this year should show the acreage of different crops you expect to grow, and the probable yield from each crop. It should also show how much of the different crops you expect to use at home; how much will be fed and how much will be sold.

Livestock should be treated the same way. The plan should show the kind and number of livestock you will have, and the probable production and sales from each kind. Homegrown and bought feeds, cash labor, and fertilizer needs and the costs of fertilizer, as well as other cash expenses for production and farm maintenance should show in black and white in the properly worked out budget ----------(As if interrupted) --What do you say, back there ---- "You're no prophet?"-----

Well, any intelligent farmer looks ahead. Fact is, it is sometimes well to look ahead more than one year in planning the budget. For example, in planting fruit trees, or trying new crops, or new livestock or new practices which mean buying equipment or putting up buildings. The expected returns for such things as soil building programs, also, can not be properly budgeted without considering returns over a period of years.

Of course, you can't forecast prices exactly; but you can foretell them within broad enough limits to make it pay to organize carefully. To do that, however, you need the best information available.--------

But let's see what we do need to know. We need information on production, and information on prices.

Where you don't have records, you should make a careful estimate of the yields you may reasonably expect from the use of different quantities of seed, fertilizer, spray, and other materials used on different soils. Then, in the light of the cost of those materials, and the prices you may reasonably expect to get, you should work out the quantities that will give the biggest net returns under different conditions.

Do the same with livestock. Determine the production that may be expected from the use of different rations and the ration which will bring in the biggest returns. Consider homegrown feeds and pasture, and the expected prices of feeds, livestock, and livestock products. If you have kept records, you can get that information from your own records. Anyway your own and your neighbors' experience will help. And all such information should be supplemented with results of experiments by the U. S. Department of Agriculture and State Experiment Stations.

A careful study of all that information will give you a basis for figuring about what crop yields you are likely to get, and the amounts of different kinds of feeds normally needed to put 100 pounds of gain on steers or to produce 100 pounds of pork, or to keep a cow or a horse under given conditions.

Then, too, price information is very necessary. You should make a careful study of prices over a period of years and the price situation now. And be careful not to give too much weight to present prices or those in the immediate past. Prices of farm products fluctuate widely from year to year -----(As if interrupted) What say? --- "Where can you get information on prices?"

Well, the U.S. Department of Agriculture and the state experiment stations get out a good many publications which show prices.

The Department issues "The Agricultural Situation" every month. That gives a general summary of conditions and shows price trends. The Department's monthly "Crops and Markets" also carries much information useful in making a budget. Then Farmers and technical bulletins are issued from time to time on particular commodities. Then there are the "Outlook" Reports issued by the Department. Those reports are usually published in February. They discuss the probable outlook for each commodity during the coming year. I'd say get one of those "Agricultural Outlook" reports by all means.

Then when you have assembled your information and made your study, you'll need that Farmers' Bulletin No. 1564 on "Farm Budgeting". It contains detailed instructions for making a farm budget and includes mention of many of the most valuable sources of information. And you'll find great assistance in the forms for making the farm budget.

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ANNOUNCEMENT: That bulletin on Farm Budgeting is Farmers' Bulletin No. 1564-F. You can get it free of charge by writing to Station_____ for it, or by writing direct to the United States Department of Agriculture. The Department also has a limited supply of the forms to be used in making the budget, and will supply you one on request.

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THE FARM FORUM Monday, January 7, 1929

NOT FOR PUBLICATION

Livestock Meeting No. 15: How to Establish an Accredited Herd

ANNOUNCEMENT: Order in the Farm Forum! ---Some of our members want to free their herds from tuberculosis. They asked our Program Committee to get a man here to tell us how to go about it. They want to know how to get one of these accredited herds we've been hearing about, or how to have their county classed as a modified accredited area. ---Well, we have a man here now from the U. S. Department of Agriculture to answer that question --- All right, Doctor, you have the floor ------

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Well, of course, you all understand how we fight tuberculosis. It is a cooperative arangement. The Federal Government works with the livestock officials of the different States, and with the officials in the different counties of those States, and with the livestock owners.

Back in 1917, we established what is known as the uniform plan. Under that plan, individual herds of cattle have been tested for tuberculosis without expense to the owners. After a herd passed the test two years straight or passed three tests six months apart, without any of the cattle showing signs of tuberculosis, it was certified as fully accredited.

That work went forward so fast that in 1921, we started this plan of/testing, or establishing what we call "modified accredited areas." Under this area plan, all the cattle except feeding cattle within a certain area are given a test in a progressive orderly way. We usually take a whole county for the area to be tested, and when the complete test of the county shows that there is not over one-half of one per cent of all the cattle tuberculous, the U. S. Department of Agriculture declares that county to be a modified accredited area. ------- What's that? ----- "What good has it done?"

Oh, there is no question about the value of it! Just from the owners' standpoint, it is a paying proposition. A recent survey, made in all of the 48 States shows that the establishment of "accredited herds" and "modified accredited areas" has enabled livestock producers to get higher prices for their cattle and to get better markets for their cattle. The industry is now demanding tuberculosis-free livestock.

That survey also showed that after livestock owners got rid of cattle which showed signs of T-B, especially where they had a lot of them, they woke up to the value of better cattle. Reports from packing houses show fewer losses from T-B, too. And bigger and more uniform milk production has been noted where T-B cattle have been removed and replaced by sound stock.

Of course, you all realize, the losses of cattle on the farm from death by tuberculosis have been cut down considerably. Not only that, but as a result there is a better market for milk and milk products at higher prices. And the testing in many areas, has brought about a freer interstate movement of cattle.

Furthermore, in the Corn Belt, many hog raisers have received considerable cash as premiums, because their counties were accredited. As you may know, most of the packers pay premiums for hogs born and raised in our modified areas. The report from the Livestock Commissioner of the National Livestock Exchange at Chicago shows that the hog growers have been paid about 1-1/2 million dollars in such premiums above the regular market value.

And last, but not least, owners of herds free from cattle T-B have protected the home milk supply.

Scientists agree that cattle tuberculosis can be transmitted to human beings, especially children.

That being the case, it is just as necessary to test the single family cow or the small butter herd as it is to free the big dairy herds. Sometimes those single dairy cows, whole milk is used for human consumption, are the cast-off undesirables of bigger herds. Where we have tested in areas where there were a good many of those old family cows, we've found a considerable percentage to have active cases of tuberculosis. --- (As if interrupted) ----- Yes, I see. You say you all realize that? ----- What you want to know is how to go about getting an accredited herd.

Well, in the first place, the first thing needed is to make the majority of livestock owners in the community realize the value of this work. If the sentiment in favor of the work has developed enough, you shouldn't have much trouble.

When the majority want it, apply to the State officials. They will give you all the information you need and show you how the work is carried on. In general, the methods are the same. That is especially true in giving the tuberculin test. Tuberculin testing is done in the same way by skilled veterinarians in all the States in this Union.

Of course, developments in local programs depend entirely on local conditions. Most of the principal dairy States have worked out detailed plans looking to the complete eradication of tuberculosis.

Such plans are working well. Only recently, the State of North Carolina completed the test of its 100 counties and the entire State was placed in the modified accredited status.

When we figured up one month ago, there were about 620 counties in the United States which had completed tests of all their cattle and reduced T-B to less than one-half of one per cent. And there are many more counties working to that end.

There are now more than 172,000 herds with more than two million head of cattle fully accredited as entirely free from T-B; and including the tests made according to the area plan, there are now more than 22 million head of cattle under supervision for the eradication of tuberculosis.

If you don't grasp the significance of those big figures, let me say that, in other words, more than one-third of all the cattle in the United States, including beef cattle, are under supervision in this work. A much higher percentage of all dairy cattle are under the plan. To bring that about, we've tested about 54 million individual animals during the past 11 years.

Let me say this, however, All the Federal and State governments can do is to help in the testing of cattle, in the payment of indemnity for tuberculous animals, and with advice. The real responsibility rests with individual owners.

And I must say, you are meeting your responsibility. The work is being done so well that it now seems that tuberculosis will be a rarity in the United States in the next ten years.

ANNOUNCEMENT: That is good news, for this Farm Forum. If there are no further questions, the meeting will stand adjourned. Remember, however, we have four other meetings this week; Tuesday, Wednesday, Thursday, and Friday. The meeting tomorrow will discuss marketing eggs.

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UNITED STATES DEPARTMENT OF AGRICULTURE

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THE FARM FORUM Tuesday, January 8, 1929.

NOT FOR PUBLICATION

Poultry Meeting No. 15: How Our Eggs Are Marketed

Speaking Time: 9 Minutes.

ANNOUNCEMENT: --The Farm Forum will be in order! --- Today a poultry expert from the U.S. Department of Agriculture will tell us how our eggs are marketed----- All right, Mr. Specialist ----How's that?--- The map? ----Give me a hand -- Let's set it around here ---- I guess everybody can see it now--------

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You ask me how our eggs are marketed. If you mean how eggs in this part of the country are marketed, I guess all you egg men know that. If you mean how eggs in the whole United States are marketed, that is a different proposition.

In fact, different sections of the country market eggs differently. There are reasons for those differences. And even in such a familiar thing to most of us, as selling eggs practices may be changing in some sections. Just because you have always marketed one way is no sign you can keep it up.

That's the reason I want you to look at this map of the United States. Let's see how eggs are marketed, as a rule, in different regions of the country. We may get some suggestions, as to the possible drift in marketing.

Of course, you know, the big cities take a tremendous number of eggs. The four markets, New York, Chicago, Philadelphia, and Boston, get by freight, express or boat, more than 15,000,000 cases of eggs a year. Nearly half those go to New York. They come mostly from 13 States; California, Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, New York, Ohio, South Carolina, Washington, and Wisconsin. So you see, other sections of the country have their eyes on the eastern market, with New York as the center.

Now, as you know, there is a high concentration of egg production in the East. But there is a still higher concentration of population. There are not nearly enough eggs produced in the East to meet the demand.

In the East, as in other sections where the producers live near the cities, you have, in general, the most simple and direct system of marketing. Producers often make direct contacts with the jobbers and retailers in the cities and towns. In some instances, they even carry their product themselves to the ultimate consumer.

Marketing is not so simple in the midwest.-- Look at the map here. You see these east north central and west north central states ------ Here they are; Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. Those States produce about 50 per cent of all the eggs in the country. They produce many more than they need. They ship to sections where there is a deficit, principally to the East.

Most of those eggs are produced as a farm side-line. Farmers usually sell the eggs to local buyers, to hucksters, or direct to poultry and egg packing plants. Big dealers collect supplies from the local buyers and combine them into carlot shipments for the far-off markets. There they go through the hands of wholesalers, jobbers, and retailers.-------(As if interrupted from audience) What? ----"How about co-ops?"

Yes, to a limited extent, eggs from the midwest are carried part of the way by farmers' cooperative associations. Where that is done the other local agencies are dispensed with. The association assembles the eggs for carlot shipment. As a rule, however, the local cooperative associations use the ordinary channels of distribution at the market centers.

In the South, except in a few scattered sections, there are very few eggs available for shipment beyond near-by cities. The system of marketing is pretty much the same as in the middle West. There, too, a sort of informal local cooperative called the "egg-circle" has played an important part in many localities in developing more interest in producing better quality eggs.

But the most interesting development in egg marketing in this country is on the Pacific Coast.

The Pacific Coast States and a few of the Mountain States have areas of very intensive production. They produce many more eggs than can be used locally. Mark those big producting areas on the map. Here they are: in Central California, and up in Western Washington and Northwestern Oregon, and in Utah and Idaho. In those areas, egg production is often a highly specialized business. Many of those farmers depend on eggs for their entire income.

The surplus eggs from this region have to be moved all the way across the continent, 3,000 miles. More than half of the eggs produced on the Pacific coast are shipped to eastern or foreign markets. About half the eggs shipped east from this region are marketed through a cooperative sales agency with headquarters in New York City.

To make it pay to ship eggs all that distance, considerable attention had to be given to the quality of the eggs. And that is what has made egg production in the Pacific Coast so different from that in other parts of the country.

The cooperative associations on the Pacific coast have established grades for each size of egg - large, medium, and small. They have certain specifications for color of the eggs, texture of the eggs and cleanliness of the shell. Also for the inside qualities; such as the color of the yolk, consistency of the albumen, size of the air cell, and presence or absence of blood spots.

Some progress has also been made both in New York and California on the side of selling eggs on the basis of quality grades. Both States have laws providing for the labeling of eggs according to grade by retailers.

However, only a small proportion of eggs entering market channels are either bought or sold on a quality basis, as yet.

Much remains to be done, even on the Pacific Coast, to increase the proportion of high quality eggs produced. That will come as consumers recognize that there are differences in egg quality and become more discriminating about the eggs they buy. And some method must be worked out by which the higher prices consumers would pay for high quality eggs can be reflected back to the producers.

This buying of eggs on a quality or graded basis and their sale to consumers on the same basis, it seems, may in time become the prevailing method of marketing eggs in all sections of this country. What has been begun on the Pacific Coast and on a smaller scale in isolated areas over the country will probably continue to grow in importance.

Just one more thing ought to be said about our egg marketing system. You all know that on account of the seasonal character of egg production many of the eggs laid in spring and summer go into storage. Number of eggs in storage is greatest about the first of August. Then the production falls off and eggs are withdrawn from storage to supply the market needs. By February each year the supply of storage eggs is almost completely exhausted. Then the spring egg laying spree starts and storage houses again fill up. This year fall production of eggs was higher than usual, so that on November 1 there were three-quarters of a million more cases in storage than on the same date in 1927. In case you want to know the figures, there were in storage on November 1, 1928, some 6,200,000 cases of eggs.

It's not hard to realize that this storing when production is at its height and selling when production falls off helps to stabilize the market for eggs.

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ANNOUNCEMENT: At tomorrow's meeting of the Farm Forum we will talk about some of our insect enemies. Thursday we will discuss the winter ration for dairy cows, and Friday we will take up the question of cutting costs by using bigger teams and implements.

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THE FARM FORUM (Regions 1 and 2) Wednesday, January 9, 1929.

Crops and Soils Meeting No. 15: Orchard Insecticides.

ANNOUNCEMENT: The Farm Forum will be in order! --We have with us today an entomologist of the U.S. Department of Agriculture. He is going to tell us something about fighting orchard insects. There seems to be a lot to that subject. Isn't that so, Mr. Insect-fighter? -------

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Yes, there is a great deal to this subject. The number of insects which attack fruit is increasing. They are increasing in home orchards as well as in commercial orchards. That makes this question of control quite complicated.

Unless the grower is something of an entomologist he is often at a loss to know how and when to treat the different insects.

To get around that trouble as much as possible, the entomologists have prepared the so-called spray schedules. We now have spray schedules or calendars for a number of crops; the apple, the pear, the peach, the grape, the currant and gooseberry.

If you follow the directions given in those spray calendars faithfully, you won't need to know all about the legion of insects attacking your orchard.

But insects are a fascinating study. And the more you know about them the better you'll be able to keep them down. I'd recommend that all of you inform yourselves as fully as possible about the insects in your orchard.

As you probably know, all insects get their food either by biting out and swallowing parts of the food material or by sucking out the juices from the tissues of the plant or animal on which they feed. Whether an insect is a sucker or a biter makes a lot of difference in the way you should fight it.

For the biting insects, such as caterpillars, and beetles, and grasshoppers, we use stomach poisons. Those poisons are mixed in or distributed over their food by spraying or dusting the plants, or trees.

For the sucking insects, we use the so-called contact insecticides, such as nicotine or tobacco decoction, strong soap washes, lime sulphur wash, and kerosene and other petroleum oil emulsions.

Then there is another class of insecticides, the fumigants; such as hydrocyanic acid gas, carbon di-sulphide, chloro-pic-rin, and par-a-di-chloro-benzene. That last is just as bad on insects as it sounds. Those gases work against all kinds of insects, but the trouble is they only work in a closed place. Those gases have to be confined long enough around the insects to kill them off.

Then, too, there are still other chemicals coming into some use in the fight against insects; that is, the attractants and repellents. You all know some of those, such as oil of cedar, oil of citronella, tar soaps, geraniol and others.

You see the business of making chemical insecticides is quite a business. Why, it takes not less than 18,000,000 to 20,000,000 pounds of calcium arsenate a year for the boll weevil alone. The quantity of lead arsenate manufactured for all purposes runs up to about 15,000,000 pounds.

Then there are on the market many different kinds of spraying and dusting outfits, varying in size from those designed to meet the needs of those owning a few trees in the backyard to those designed to meet the needs of those who have big orchards of hundreds of acres. --------(As if interrupted from audience) ------- Yes? ---- Certainly, I'll answer your question if I can --------What? ----"Which is best, spraying or dusting?"

Well, the application of stomach poisons in the form of dusts instead of sprays has been, and is being, much advocated. It is claimed that dusting saves time and work. ---(As if interrupted) "Cost more," you say? -------

Yes, the dust materials cost more than the materials for sprays; yet, for the complete operation, the final cost is about the same, because of the saving of time in applying the dusts as against the sprays. -------(As if interrupted) What's that? ----- "Which is hardest on the insects?"

That's a good question. However, the consensus of opinion seems to be that the sprays are rather more effective than dusts. After the sprays have once dried on the foliage and fruit, they stick better than the dusts. In fact, a heavy rain will wash off so much of the dust that you have to make another application.

As you all know, for several decades now, those of us who own orchards have been putting such insecticides as lead arsenate in such fungicides as Bordeaux mixture or dilute lime sulphur wash. In that way, with one application, we control the biting insects as well as the fungous diseases.

In cases where there are such sucking insects as plant lice, leaf-hoppers, or the like, we add a contact insecticide, such as 40 per cent nicotine sulphate to the lead arsenate and Bordeaux mixture spray. In that way, we can go after the fungous diseases, and the chewing insects and the sucking insects all in one dose. That's another reason, I prefer sprays. Dusts do not lend themselves so well to such combinations as do the sprays. And not only that, no fungicidal dust has thus far been developed which is as effective in controlling fungous diseases as such sprays as Bordeaux mixture or dilute lime sulphur.

However, insecticidal dusts are a great improvement over no treatment at all. The use of dust is warranted under special conditions. It is well to use dusts where there is no water or where it is scarce or where the trees are growing on very rough ground----------(As if interrupted) Did someone ask a question? -----"Damage?" -------Yes, that's true.

There are a number of drawbacks to the use of chemicals on plants. Chemical insecticides do often injure the foliage and fruit. On account of the poisons used, there is an element of danger to human beings and livestock in using them.

However, you can set it down as certain that chemical insecticides are, at the present time, by long odds, the most effective weapon in our warfare against insects.

Each year we spend in this country a tremendous amount for chemical insecticides. It probably costs the apple growers each year some $10,000,000 to spray for the coddling moth, and probably about as much in holding the San Jose scale in check. But the results from such treatment are immediate and visible.

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ANNOUNCEMENT: At tomorrow's meeting of our Farm Forum we will have a discussion of winter rations for dairy cows. And on Friday, we'll take up the question of big teams for small farms. Now this time next week all you truck gardeners should be here. We'll talk over some of your problems.

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THE FARM FORUM (Region 3) Wednesday, ~~January 9,~~ 1929.

Crops and Soils Meeting No. 15: Insurance Against Termites.

ANNOUNCEMENT: Members of the Farm Forum, we have a U.S. Department of Agriculture insect specialist with us today. We've asked him to appear before this meeting, so we can ask him some questions about damage to woodwork by termites or white ants. They do a lot of damage, don't they Professor? ---- "They seem to be getting worse all the time, don't they? ----------

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I'm glad to be here to answer your questions about termites. That you are asking about them, shows you are waking up to the damage they do. You are, no doubt, finding that much of that damage to house timbers you used to blame on "dry rot" was really caused by termites --- or maybe you call them "white ants."

Anyway, white ants or termites are the biggest insect destroyers of wood. Of course, they have always done considerable damage to woodwork in buildings here in the South. But, as your Chairman said, the damage is becoming more and more serious. ----------

Now, if any of you have any questions ------- I saw this gentleman over here on the right first -----What's that? ---"Where did they come from?"

Well, as I said a moment ago, they have always been here. A lot of people seem to think they were brought into this country --- but that's wrong -- They are native insects --- been here all the time. ---(As if interrupted) -----"Why are they spreading?" did I hear someone say?

The answer to that is that they are not spreading. ------ Just a moment -- I know I said the damage was getting bigger ----- but the termites are not spreading, they are just changing their living quarters. The natural home of these insects are in the woods and fields. We've cleared the woods and fields to such an extent that the termites have been forced to attack buildings to get their food and shelter. ----

Now then, on the front row ---- What was your question? ---- "Insecticides?" No. No.

You can't reach termites with insecticides or by fumigation. You see they are underground workers. They come up and bore their way into the timbers from underground. You can't get any permanent protection by using poisons ---- (As if interrupted) ---What's that? ----- "No trouble after the "flying ants" disappear?"

No. The disappearance of the winged adult termites or flying ants doesn't end the the trouble by a long shot. The flying ants appear in big swarms each Spring and Fall to start new colonies. In buildings, where there is no moist earth for them to burrow into, it is true, they will soon die. But the wingless, dirty-white, ant-like workers keep eating out the wood where you can't see them. The damage to the building goes on.

But the "flying ants" do one thing. They give you warning the building is being damaged. They show you that you need to get busy on repairs.

Most termite damage is due to improper construction of buildings. Practically all the damage to woodwork of buildings can be prevented by keeping the habits of termites in mind and building accordingly.

In cities, the inclusion in mandatory city building codes of a few brief termite-prevention provisions is the logical solution of the problem. If anyone will follow a few practical suggestions he can not only prevent damage by termites, but can also remedy damage to buildings already infested by termites. -------- What's that you say? --- "Give them to us!" -----

All right, sir, here they are: The chief idea is to keep the termites from coming up from the ground, where they live and get the moisture they have to have in order to live.

The best protection against entry is to construct all basements, foundations, and cellars, including floorings as well as walls, entirely of brick, stone, or concrete; in other words, to eliminate wood altogether from such basement walls and floorings. Use cement mortar in such masonry walls and foundations, and cap all such masonry with concrete, or with mortar and slate In addition, metal mechanical barriers should be placed over masonry foundations. In buildings without basement rooms, ample ventilation should be provided between the ground and wooden floorings.

Termites which are infesting beams or other wood will die out if the wood is disconnected from the ground. Knowledge of that fact, will save you time and expense; especially in the case of old frame buildings, where expensive repairs would be unwarranted. ----(<u>As if interrupted</u>) What is your question? ---- "How about the termites which have reached the upper floors?"

They'll die out too. Disconnecting untreated foundation timbers from contact with the soil will also cause the death of termites in the other woodwork, or furniture, or stored material in the building, even if they have penetrated to the second or third floors. Unless the timbers have been seriously weakened structurally, they need not be taken out or replaced.

However, if the wood is kept moist some other way, as, for instance, by water leakage, the termites will keep working and thriving. That's especially true in regard to damp corners of basements near outside water pipes, or in regard to bathrooms, or kitchens, and the like.

Wooden floors laid directly on the ground or on stringers on the ground, or set in concrete, should be removed. There should be a layer of concrete between the earth and the wooden floor. Wooden sills and baseboards should be removed. ---------- but I'll tell you what ----- Suppose you write to the Department of Agriculture. Ask them to send you that Farmers' Bulletin No. 1472-F on "Preventing Damage by Termites or White Ants". That will give you full details of how to handle your termite problem.

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ANNOUNCEMENT: Did you get that number. It was Farmers' Bulletin No. 1472-F and is called "Preventing Damage by Termites or White Ants." It may be had for the asking, by writing either to Station_ _____ or by writing direct to the United States Department of Agriculture.

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THE FARM FORUM (Regions 4 and 5) RELEASE Wed. ~~Jan 9, 1929.~~

NOT FOR PUBLICATION

Crops and Soils Meeting No. 15: Termites and Finance

SPEAKING TIME: 8 Minutes.

ANNOUNCEMENT: The meeting will be in order! --- This Farm Forum has had some big questions before it for discussion. Today an Insect Expert from the U. S. Department of Agriculture is going to tell us about some of the little things which are getting so plentiful they amount to a big question, too. He is going to talk about these white ants or termites which damage house timbers and the like -------
All ready, Mr. Specialist ----------

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To begin with, I'd just like to read a letter werecently got at the United States Department of Agriculture. It is from a Bond and Mortgage Company in Los Angeles.

In the first paragraph here, the writer explains that he is the Consulting Architect for a certain Bond and Mortgage Company which is constantly making loans on frame buildings. Then he goes on to say ----- but I'll just read what he does say: (Reads)

> "Recently it has been called to my attention there has been seemingly a spread of the White Ants or Termite," he writes. "These seem to be doing considerable damage throughout southern California. They eat out the timber under the houses and cause at times heavy expense.
>
> "Naturally, we make building loans over a period of years and I am beginning to wonder what effect this Termite pest will have on our building loans.
>
> "If you have any information as to the prevention of Termites and also as to whether this pest is spreading in Southern California, I should appreciate your letting me know."

We also have a similar request from the research department of a National Bank and Securities Company in Los Angeles. Such letters show that bankers are getting worried about termite damage to the

woodwork of buildings.

In Hawaii, bankers recognize the importance of the termite problem. Destructive Oriental termites have recently been introduced into Hawaii and are spreading and causing a great deal of damage. The bankers there will loan more or charge a lower rate of interest on buildings especially built to prevent termite damage. A group of corporations there hired an entomologist to inspect buildings on which they loaned money, so as to make sure the investment was safe.

Our specialists have made an investigation of termite damage throughout this country and in Hawaii where termite damage to buildings is worse. They report that most of the damage is due to the methods of construction of the buildings. They say that practically all the damage could be prevented, if builders knew the habits of these wood-boring "white ants," as they are called, and took advantage of that knowledge to build properly. --------(As if interrupted) Beg pardon? ---- "When were termites introduced into this country?"

"They were not introduced. They've been here all the time. These are native termites doing the damage around here. Oriental termites have not been introduced. Some have been intercepted in woodwork of ships plying between Hawaii and California. But these doing the damage here have been here all the time.-----(As if interrupted) -----What? --- "Why the sudden spread then?"

Well, strictly speaking, there hasn't been any spread. The termites have been here all the time. They've just had to look for a new food supply and new homes --- and they've picked on our new homes.

You understand, termites or "white-ants" are wood-boring, subterranean insects. Their natural home was in the dead trees, and decaying stumps, and logs of the forest. When we cut down the forests and woodlands and cultivated the fields, we forced the termites to attack buildings to get the food and shelter from the woodwork. So you see, the damage to woodwork of buildings is becoming more and more common and serious. Then, too, folks are just coming to realize the damage termites do. Much of the damage used to be confused with "dry-rot."

It is pretty hard, however, for a man on a small salary to buy a little home on the installment plan, and make a big down payment, and then be forced to spend several hundred dollars in a few years on repairs on account of termite damage.

Some of you may know how it is. Maybe as a result he can't meet his monthly payments. Then the banker gets interested. And the banker finds that, owing to ignorance of the destructiveness of these native termites of ours, the home wasn't built right in the first place. Scuh cases are convincing bankers and householders that they

need some sort of insurance against termites. The best insurance is to build buildings properly ---------(As if interrupted) What's that? ----- "How would I build them?" ---"How can you prevent termite damage?"

Well, the logical way to go about it, in the case of city buildings, would be to put a few, brief, termite-preventing provisions in mandatory city building codes.

The thing to remember is that termites are subterannean insects which must keep contact with moisture to live.

The way to prevent termite damage is to keep the termites from coming up from the ground and burrowing into the woodwork of buildings.

The best protection against such entry is to construct all basements, foundations, and cellars, including floorings as well as walls, entirely of brick, stone or concrete; in other words, to eliminate wood altogether from such basement walls and floorings. Use cement mortar in such masonry walls and foundations, and cap all such masonry with concrete or with mortar and slate. In addition, metal mechanical barriers should be placed over masonry foundations. In buildings without basement rooms, ample ventilation should be provided between the ground and wooden floorings.

But go about this termite prevention in a thorough way. The Department of Agriculture has a bulletin on "Preventing Damage by Termites or White Ants." It is Farmers Bulletin No. 1472-F. Write for it.

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ANNOUNCEMENT: You can get that bulletin either through this Station or by writing direct to the United States Department of Agriculture. Don't forget the number. It is Farmer's Bulletin No. 1472-F and is called "Preventing Damage by Termites or White Ants."

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THE FARM FORUM Thursday, January 10, 1929.

Dairy Meeting No. 15: The Winter Ration.

Speaking Time: 8 Minutes.

ANNOUNCEMENT: The Farm Forum will be in order! --- Some of our members have raised some questions about winter feed for the dairy cows. Today we have a man here to answer any questions like that. He is a specialist from the U. S. Department of Agriculture. Here he is. Fire any questions at him you want. All right, Sir. Go ahead and tell us what we should feed--------

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Well, the winter ration should be suitable. It should be suitable in both kind and quantity to produce milk. And, what is just as important, is should be cheap.

In the first place, give your cows all the roughage they will eat. There are three good reasons for that. First is, roughage is the cheapest cow feed. Second, the cow is built, her digestive system is adapted, to handle large quantities of rough feed. And third, there is no danger of a cow hurting herself by eating too much roughage.--------- (As if interrupted from audience)- What? "What kind of roughage would I feed?"

One kind of roughage every milking cow should have is legume hay, preferably alfalfa.--But there are two kinds of legume hays--- there is good quality hay and bad quality hay.

The legume hay is leafy and cured without too much exposure to the sun and the dew and the rain. If your legume hay is not good quality it may be no better in some important respects than grass hay -------- (As if interrupted) All right --- the gentleman who started to get up --- Did you have a question? ----- Yes ----- Oh, yes, that's all right.

--- Did you all hear that? --- This man here says his cows eat some grass hay or straw or corn stover even after they have had all the legume hay they'll eat.

I told him that that's all right. The object is to get the cows to eat as much roughage as possible. It is a good idea to give them a little of those feeds, if you have them; but they shouldn't be made the main articles of diet.

And while cows do very well when fed only good legume hay, it ordinarily pays better to give them also some silage or other succulent feed. Silage furnishes nourishment in a cheap form. Cows will get more food-value out of hay and silage fed together than out of hay alone.

The more of her nourishment she gets in the form of roughage, the less she will need in the grain ration.

What grain you should use will, of course, depend upon the quantity and kind of protein and minerals the cow gets in the roughage. The cow must have the proper kind as well as the proper amount of protein and minerals. ----------(As if interrupted) What say? ---- "How can you tell?" ---- You mean how can you be sure she is getting the proper kind and amount? ---

Well, in order to make sure of that, it is a pretty good idea to prepare a grain mixture made up from at least three different plant sources.

Let's say you are giving your cows a good legume hay and corn silage. In that case, you will want a grain mixture which is altogether about 16 to 18 per cent protein.

You can get that with a mixture of 200 pounds corn meal, 200 pounds of ground oats, 100 pounds of wheat bran and 100 pounds of Cottonseed meal ----- "Again?" ---- Why certainly, I'll repeat it.

Corn meal, 200 pounds; ground oats, 200 pounds; wheat bran 100 pounds; and cottonseed meal, 100 pounds.

You might substitute hominy feed or barley for the corn meal. You might substitute bran for the ground oats. And you might substitute linseed meal or peanut meal or soybean oil meal for the cottonseed meal. -------- (As if interrupted) What's that? ------- Yes ------- Yes, that grain mixture is for use where you feed legume hay and corn silage -------- You want a grain mixture to feed where you use only legume hay for roughage.

In that case, you will want a grain mixture containing 12 to 13 per cent protein. You can make such a mixture as that from equal parts corn meal, ground oats, and wheat bran. ----- (As if interrupted) ------ Ah --- We have another question over on this side -------- What was yours? ------- I see --- "What grain mixture would I feed with grass hay or silage, without any legume?"

If you have to feed only grass hay or silage or both, the grain mixture should contain 24 per cent protein. You can make up a mixture with that amount of protein by using grains in these proportions: corn meal, 100 pounds; ground oats, 100 pounds; wheat bran, 100 pounds; and cottonseed meal, 200 pounds.

Give your cows all the roughage they will eat, regardless of their production. Then give them grain according to the amount of milk they produce. Give them enough to keep them in a medium state of flesh. That is, so they will be neither too fat nor too thin.

A Jersey cow producing 10 pounds of milk, or a Holstein cow producing 16 pounds of milk will get enough food-value from good legume hay and corn silage alone. For each pound of milk above ten pounds from the Jersey cow give a little over a half pound of grain. For each pound of milk above 16 from the

Holstein cow give a little less than a half pound of grain. Thin cows should have more. Also you will need to feed more grain with poorer quality roughage.

I'm assuming in all this discussion that you dairymen raise your own roughage. Whether you raise the grains you feed your cows or whether you buy them, of course, depends on conditions. You'll have to decide that for yourself. Grain can be bought at a price much nearer what it would cost to grow it than can roughage.

Because of the cost of baling and shipping hay, it can usually be raised cheaper than it can be bought. The cheapest ration is one in which the roughage at least is raised by the dairyman.

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ANNOUNCEMENT: Tomorrow our Farm Forum meeting will be given over to a discussion of big teams and implements in cutting costs. The next dairy meeting will be next Thursday at this time. At that time, we'll take up the selection of a herd sire.

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THE FARM FORUM RELEASE Fri. Jan. 11, 1929.

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Farm Engineering Meeting No. 5: Cutting Costs with Big Teams.

SPEAKING TIME: 8 minutes

ANNOUNCEMENT: I take it that every member of this Farm Forum is worried at times about production costs. Here toward the beginning of the year, every time we try to plan something on the farm, this question of costs bobs up. For that reason, we're glad to have with us a specialist from the U.S. Department of Agriculture. He is to talk about bigger implements and teams. He claims they are one way to cut the cost of production.

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(As if to man leaving hall)

---------- Just a moment,------- Where you going?------- What's that?----- You say you are "not interested"--------- You say you have a "small farm?" ---------- Good enough!---------

If you will just take a seat, you'll find we have something here for you.

--------- I'm not offended------- I know how you feel about it----- A lot has been said about tractor farming and bigger units for cutting production costs. And there is no question about the merits of those things. But there are many folks like you, who feel that such advice just doesn't fit in their cases.

The fact is, as I hope to show you, that some practical application of bigger implements and bigger teams can be made on every farm where horses are used, regardless of the size of the farm.

The chief advantage of using bigger teams on the farm is in the saving of man hours; that is, in increasing the amount of work one man can do. One man with a six-horse team should be able, with the proper kind of machine, to do as much work as two men each using a three-horse team------- (As if interrupted) Yes? ------- "Hard to manage?" ----- No -- no.

That old argument that a bigger team is harder to manage no longer applies. A number of first-rate big-team hitches have been worked out. There have been a good many demonstrations of those hitches in the last

couple of years. If you have traveled around the country recently as I have, you'd notice the difference, too. In many sections, nowdays, you never see any but the bigger teams.

Plowing is a good illustration of how a big team works in saving man-hours.

Where the tandem hitch is used, where one horse is hitched in front of another, the line of pull of the team is in line of draft of the plow. That cuts out the side draft which ordinarily you can't help but get with horses hitched abreast. Doing away with that side pulling not only lets the plow work better, but allows the horses to walk straight forward much easier.

Also, with the bigger team hitches, the horses are held in place. Young and fretful horses will, in most cases, give much less trouble. There will be fewer delays. Nowdays, five and six horse teams are being quite generally used for plowing even on the smaller farms. ------ (As if interrupted) What say? ----- "That means bigger implements?" ---- Oh, no. -----

The use of a bigger team does not necessarily require a bigger implement to be an advantage. An extra horse or two on the team will lighten the pull so that the team can travel faster; and without danger of overheating, or sore shoulders, and other troubles. Or maybe you can adjust the implement to do more efficient work. And having plenty of power in reserve you can take care of sudden increases in the load.

When you have enough horses, big teams can be used to considerable advantage to pull several implements as one unit. That, of course, has been done on a big scale in the Great Plains for many years. But it could be done on a smaller scale on many farms in other sections of the country.

The bigger implement and team are often a decided advantage at some of the critical times of the year; at times when there is an emergency.

For instance, bad weather at planting or harvesting time often make it necessary to do the work in a few days to prevent a failure of the crop. At times like that, you shouldn't depend too much on hired labor. Bigger teams and implements will, at least, cut down the chances of trouble from lack of hands. In some cases, they may prevent a loss of part of the crop. ------- ----------(As if interrupted) ----- How's that? --- "You don't keep any more horses than you need?"

Well, that's probably the case with most farmers. But there are times when some of your horses are idle ---- Isn't that so? ---- I thought so.---------- Just remember, an idle horse is not a producer. He is a consumer. It costs money to feed an idle horse. And that's not all. An income you might get from the work of that horse is also lost.

In many cases, and probably in yours, if larger teams were provided for, the now idle horses would be doing a regular day's work, at least a greater part of the year.

When prices are somewhat stablized, you can readily see that the amount of your net returns from the farm will depend upon the cost.

Farmers who use horses compete with the big-scale, efficiently-managed, power farms. Hence they must expand their own operations, so that more work will be done by each man. The only way to do that is by the use of bigger teams with bigger implements or with a combination of implements.

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ANNOUNCEMENT: This concludes the Farm Forum meetings this week. All of you be on hand at this time next Monday for our regular livestock meetings. Tuesday is our poultry day. Wednesday we go into crop and soil problems, and Thursday is our dairy day. This time next Friday we will talk about the uses of timber on the farm.

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THE FARM FORUM

Tuesday, January 15, 1929.

NOT FOR PUBLICATION

Poultry Meeting No. 16: Good Hatching Eggs.

ANNOUNCEMENT: The Farm Forum will be in order! ---- Today we have with us a specialist from the U. S. Department of Agriculture --- You know, it is time for poultrymen to begin thinking about the spring hatch. And everytime we think about that, we think about those eggs which don't hatch. Maybe this specialist can tell us how we can get bigger hatches ---- How about it, Mr. Specialist? ----

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Speaking of hatching eggs, there is one thing fairly certain. Figuring roughly, there will be about two billion eggs set in this country this year.

That's a staggering figure. But here is something more staggering. Eight hundred million of those eggs will be a total loss.

Maybe those figures will be a little more clear, if we put it in percentage. In other words, about 40 per cent of all the eggs set will not hatch. Nearly half of all the eggs set in this country fail to produce live chicks --------(As if interrupted) ---- What's that? ---- "What's the reason?"

Why, a large part of that loss is due to poor quality eggs. The eggs are just not the hatching kind ---- (As if interrupted) What? ----"How can you help it?"

Well, there are a good many things that affect the quality of hatching eggs -------(As if interrupted) What say? --- "Can't count your chicks before they're hatched," you say? -------Yes --- Yes ---- even "under the best incubation conditions."

That's right. Many fertile eggs do fail to hatch, even under the best of incubation conditions. Hatchability of eggs is an inherited character, but high-producing hens of good appearance and strong vigor vary a great deal in ability to produce hatchable eggs. You should cull your breeding flock carefully. If you can, select the males from hens who have shown ability to produce good hatchable eggs. --------(As if interrupted) Yes? ----"Yearlings or pullets?"

Yearlings, of course. Yearling hens make better breeders than pullets, because they are more mature, because they lay bigger eggs, and because they've had a rest in the fall. However, early hatched pullets which have also been through a fall molt make good breeders. And remember that the best hatching eggs are not produced by stock which has been closely inbred. And hens which have been sick should not be used for breeding -------(As if interrupted) How's that? -----"Doesn't feeding affect the quality of the eggs?"

Naturally---- and the feeding is one of the easiest things to improve. Generally speaking, rations which tend to keep the flock in prime physical condition give the best eggs for hatching. The breeding ration should be well balanced. It should contain a variety of feed. But the feed should neither be very concentrated nor especially high in protein. It should furnish enough protein and be well supplied with minerals, and vitamins, and green feed, and milk, and bulky feeds.

The minerals are supplied in the bran, in the middlings, and in the green feeds, and by the use of five per cent bone meal in the mash.

Vitamins are supplied in the green feed and milk. Also in the yellow corn and middlings.

The green feeds, and alfalfa products, and bran, and rolled oats all add the bulk you want in the breeding ration. The germ in the corn and wheat helps the breeding hens, so ground wheat and ground corn are good feed for breeders. Eggs contain a big per cent of water, so plenty of clean drinking water should always be kept before the hens. Be sure the hens can get water in freezing weather.

There is no one feed which will add more to the breeding ration than milk or some of the milk products -----(As if interrupted) Now then, you, there in the last row ---- Did you have a question? ----------
Oh, I see --- You want a good breeding ration. All right. Here is one. Here is the mash ration: 30 parts, by weight, yellow corn meal; 15 parts rolled oats; 11 parts bran; 8 parts middlings; 7 parts meat scrap; 7 parts fish meal; 5 parts dried milk; 5 parts alfalfa leaf meal; 5 parts bone meal; 4 parts linseed meal; 2 parts ground limestone and 1 part salt.

That's quite a mixture. I guess I'd better repeat that. Here goes: 30 parts yellow corn meal; 15 parts rolled oats; 11 parts bran; 8 parts middlings; 7 parts meat scrap; 7 parts fishmeal; 5 parts dried milk; 5 parts alfalfa meal; 4 parts linseed meal; 2 parts ground limestone; and 1 part salt.

I feed that mash with a scratch feed of 2 parts yellow corn, 1 part wheat, and 1 part oats.

Then, too, I'd feed some green feed each day and supplement the ration with some liquid milk.

Hens which are out doors on a green range will usually produce good hatching eggs. But in most sections, green range is not to be had early in the breeding season. The breeding hens also need direct sunlight. If sunlight is at all lacking, I'd add cod liver oil to the ration. Cod-liver oil is a good thing to give all the breeders which don't get green range outside.

One or two per cent of cod-liver oil can be either mixed in the mash or in the scratch feed. If the hens must be kept inside, the windows should be handled so as to furnish as much direct sunlight as possible. Glass substitutes, which let in the healthful rays which ordinary window glass shuts out, can be used to advantage.

The houses should be dry and the litter should be kept dry and clean, and the hens should be kept free from lice. -----(As if interrupted) What's that? ---- "What proportion of roosters would I use?"

In mating you mean? -----Well, a Leghorn or small-breed rooster should be mated to about fifteen hens. In the big breeds, ten or twelve hens are mated with one male. In larger matings, either four or five Leghorn males or six to seven general-purpose males are mated with one hundred hens. The hens should be mated with the best proportion of males and females, several weeks before you want the eggs for hatching.

And remember this, all the eggs you get, even from selected hens, will not be up to the best standard. Discard all eggs which weigh less than two ounces or twenty-four ounces to the dozen. Size of eggs is very important, because big eggs produce big chicks. Select the eggs also for color and shape. White eggs should be pure white and not tinted with brown.

If you follow these suggestions, you will stand a good chance of getting good quality eggs. Many farmers can sell good-quality eggs to hatcheries at prices considerably above the prices for market eggs. That means more income. And lowering the hatching losses in your own farm flock may mean still more.

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ANNOUNCEMENT: Tomorrow we will discuss some truck garden problems and Thursday we will take up the question of selecting a bull for the dairy herd. Friday we will figure on how to use that farm timber.

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U. S. Department of Agriculture

Wednesday, January 16, 1929.

THE FARM FORUM

(Region 3)

Crops and Soils Meeting No. 16b: Fruit and Vegetable Standards.

Reading Time: 9 Minutes.

ANNOUNCEMENT: -- Come to order, men! ---- Our old neighbor, who is now a marketing specialist with the United States Department of Agriculture is going to talk to us about the Federal Standards for fruits and vegetables. You who know him know he "knows his onions" -- and his other vegetables --- from below the ground, on up -------

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Speaking of standards of fruits and vegetables, I wish you could have heard us laugh at old Joel Scott. A few of us were sitting around the stove, as I remember it. It was down at Tompkins' store, fourteen years ago and we were having a more or less serious discussion. But when things drifted around to marketing vegetables, and old Joel suggested that we would some day have Federal standard grades for such things as fresh vegetables and fruit, we certainly did laugh at him.

The idea of Federal grades for such perishable stuff seemed downright foolish. In fact, up to ten years ago, the United States Department of Agriculture had recommended grades for potatoes and Bermuda onions -- but that was all.-------But now see what's happened. At present there are U.S. grades for over 40 fruits and vegetables. And they are all being used in practical commercial operations. Now it is almost a safe prediction that in ten years more, most of us will have forgotten that business was not always transacted on the basis of national standards.

It is not surprising that we have done so much toward standardization of fruits and vegetables, when you consider the conditions. The farm value of the 28 important fruits and vegetables in the United States is now well over a billion dollars. The trend has been to centralize production of many of our chief fruits and vegetables in parts of the country far from the markets. Since the big markets have been filling their needs without regard to distance, there has been a special need for studies of the preparation of crops for market and standardization of

grades. ---------- (As if interrupted) Well ------ Yes, I'm always glad to answer questions --------- (Pause as if for question)

Well, the two chief advantages of standardization are, the advantages of a common language between the buyer and the seller and the advantages of actually sorting the product into different grades of market quality.

Sorting the product into different market grades is especially important in cooperative associations. It gives a basis for pooling the products of various growers so that all may share alike in the season's pool. Actual sorting also makes for better distribution. By 'better distribution' I mean finding the market which will give the farmer the biggest return for his product. To find that market involves reaching the widest territory which transportation costs and the perishability of the product will permit. Finding the best market also involves extending the market season, so as to allow the most time to get rid of the crop; and conforming to trade preference, so as to meet the broadest range of consumer demand; and keeping down the distributor's share of the profits.

The necessity for a common language is very evident. Standard grades which mean the same to both buyer and seller make dealing practical on the basis of future contracts, long range buying and selling, the settlement of claims, and the intelligent comparison of market prices.

In fact, it was the need for a basis of intelligent comparison of market prices which started the present national standardization of fruits and vegetables. In the process of establishing its telegraphic market news service, the Department of Agriculture found the need for a uniform basis of quotation, and so, in 1915, began the study of national standards of fruits and vegetables.

In 1918, the U.S. grades for potatoes were issued jointly by the U.S. Food Administration and the Department. During the war, the use of these grades was practically universal. And now, although there is no national authority to require the use of Federal Standards, they are still the only well-recognized grades in use.

The biggest boost to standardization was the establishment in 1917 of a Food Porducts Inspection service in the big receiving markets of the country. In 1922, inspection of perishables was extended to the point of origin.

Some of you probably know how that service works. Under the law, The Department of Agriculture is authorized to certificate the quality and condition of fruits and vegetables and certain other farm products when received in the terminal markets, or when offered for sale in interstate shipments. In practically all the leading markets, there is a staff of trained inspectors; and, either independently or in cooperation with state agencies, licensed inspectors under close supervision handle the inspections at the point of origin.

Certificates are issued by these inspectors regarding the quality,

size and condition of the product, with a description of the condition of the car and equipment, and method of loading, and so forth. Those inspection certificates are accepted as prima facie evidence in all Federal courts, and in some state courts. The certificates issued under joint authority of State and Federal Departments are usually receivable as prima facie evidence in the states where they are issued. You can all see the value of such documents in connection with sales at long range and as a basis for future delivery. They are also used extensively in fixing the responsibility for deterioration in transit.

As long as products were placed on cars and shipped to distant markets without inspection, they were subjects of controversy when they reached their distination. We are often inclined to think we have been treated unfairly. But with the establishment of this inspection service at shipping points, many of us come in direct contact with the inspectors. Where our stuff fails to make the grade, we get an explanation as to why. I know a number of cases, in which knowing the exact reason why products were found below the acceptable standard of market quality has stimulated the grower's interest in better methods of production. Such education is one of the best effects of the inspection service.

Of course, you understand, the use of the Department's inspection service is entirely optional. The inspection is made for a fee which will as nearly as possible cover the cost of the work. Last year over 210,000 cars of fresh fruits and vegetables were inspected largely on the basis of these optional Federal grades. The whole development of national standards for fruits and vegetables has been by educational means and in connection with commercial operations.

National and local farmers' organizations, banks, warehouses, crop insurance companies, educational institutions, and the trade in general, indorse the policy of standardization. For that reason, a tremendous pressure for improved practices is being brought on the more backward communities.

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ANNOUNCEMENT: The U. S. Radio Farm Forum, one meeting of which has just been concluded, is sent by the United States Department of Agriculture. Tomorrow is Dairy Day in the Forum schedule.

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THE FARM FORUM (Regions 1, 2, 4 and 5) Wednesday, January 16, 1929.

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Crops and Soils Meeting No. 16: Survival of Near-by Produce.

ANNOUNCEMENT: The Farm Forum will be in order! --- Members will please find seats! ---- so those of us who grow garden truck for market can find out where we stand. Today a specialist from the U.S. Department of Agriculture is here to tell us what is going to become of the truck farmers who live near market in face of the competition from long-distance shipments ---------- Mr. Specialist, some of us have had some hot arguments on this subject. What are the prospects?

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In one form or another, I've been asked this question a thousand times: "Can the nearby grower of fresh fruits and vegetables stay in the game? Can he stay in the game if he wants to in spite of the competition from the big western and southern growers?"

That is not exactly a new question. I could have answered it some fifteen years ago; but I would probably have answered it differently from the way I am going to answer it today.

The use of refrigerator cars long ago made it possible for the far away truck farmer to compete with farmers who haul their own truck to the big city markets. New truck sections were opened up. Under irrigation, "the desert flourished and blossomed as a rose." The new areas had the advantage of cheap labor and relatively cheap land. If the land wasn't cheap it was because it was enormously fertile. In the early days of their cultivation, such desert lands were free from weeds which vegetable growers in rainfall country have to fight.

The new vegetable areas along the Gulf Coast and in the Southwestern dry lands did not compete with most of the market gardeners in the eastern states during the months when home-grown vegetables were most plentiful. But almost from the beginning fresh products shipped early from the South competed with the stored truck such as onions, and potatoes, and cabbage and root crops of the northern truck gardens. That looked bad enough to northern truck farmers. Then came the development of dry lands in the Rocky Mountains further north.

With that development, we had the possibility of competition, between truck crops from a distance with those from the eastern and northern states, during the season when the northern and eastern truck farmers had always had the local markets to themselves.

You all probably remember --- Some fifteen years ago, it was freely predicted, not only by enthusiastic promoters of irrigation schemes, but also by many economists, that near-by truck gardeners were doomed. It was predicted that even the perishable food supplies of big eastern cities were destined to be brought from greater and greater distances. Nearby supplies would dwindle, they told us. They would dwindle not only in relative importance, but in absolute quantity.

That did happen; but only with a few products. The trouble with that prediction was, that it didn't allow for the development of good roads and auto trucks.

Generally speaking, improved roads and auto trucks have extended the city truck garden sections from close to the city to all of the land within, say, fifty miles. Of course, auto trucks carry garden truck further than that. But those which haul big quantities more than fifty miles are usually just taking business which used to be handled by the railroads.

The truck has increased competition among local growers, it is true. It has increased the numbers of local growers. And it has made available all the land suitable for trucking within a much larger area. But by making it possible to use the very best adapted land even at a distance from the city for the local supply, the truck and hard-surfaced road have helped the local producer compete with the far distant shipper. --- (As if interrupted) What's that? ---"Won't the far-distant farmer force him out in the long run?"

No. The man who lives near the consumer has several advantages. Those advantages are not likely to be taken from him.

First, his cost of delivery is lower. His truck moves the produce directly from his field to the buyer's door. The distant producer, on the other hand, must truck from the field to the station, then stand freight and icing charges, and often trucking charges in the final market, with the danger of rough handling at each step.

The nearby producer also saves in packages. Of course, his stuff which goes into cold storage, like barreled apples, will need the same packages as those grown at a distance, But there are a great many things, such as bunched vegetables, which are marketed in open containers or without any package.

And, up to this time, at least, the local grower enjoys another advantage. His products do not need such close grading as is necessary with products from a distance. When goods are marketed in open packages or without packages, they are easily inspected. If they are sound and fresh, the average buyer does not seem to be so particular about uniform sizing as he is when buying goods from a distance in closed packages.

The local grower can also sell small sizes, at low prices, and get something for his work. If those same goods were shipped, say, one thousand miles, they would not pay the freight and handling charges. That's as true of fruits as of vegetables.

Windfall fruits can often be sold in nearby markets. But they can not be packed and shipped long distances. That one item may mean the difference between profit and loss on an orchard for the year.

The local grower can harvest his produce at just the right stage of ripeness. The distant shipper, however, must often pick his fruits before they reach their best. That makes it possible for local growers to specialize in varieties of first-rate table quality which won't stand long shipment.

Why, even the weather is not so important to the near-market farmer. If it is too wet to gather the crop today, or even this week, he can usually gather it tomorrow or next week. If it is a little riper than he wants it, he can still sell it. Under the same conditions, the farmer one thousand miles away would lose his crop. He could not get the ripe stuff to market before it became unsalable.

Then the nearby producer usually depends upon local labor. He is reasonably sure of getting extra hands when he needs them. Much of the distance produce is planted or harvested by itinerant or migratory labor. That is much more uncertain, both in quantity and quality, than local labor.

So you see, in spite of western and southern competition, the nearby producer seems certain to survive. In fact, I'd say, there is reason to believe, that his position may get better instead of worse.

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ANNOUNCEMENT: Before the meeting breaks up, I'd like to call the attention of the dairymen present to the meeting tomorrow. Tomorrow, we are going to discuss the selection of a bull for the dairy herd. Friday, we'll have a meeting on uses of timber on the farm. Let's all be on hand promptly.

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THE FARM FORUM

RELEASE Thur. Jan. 17, 1929.

NOT FOR PUBLICATION

Dairy Meeting No. 16: Selecting a Herd Sire.

Speaking Time: 8½ minutes.

ANNOUNCEMENT: A little order, please!--- Members will please find seats!----- The Farm Forum will be in order! --- This was the day we agreed to talk about selecting a dairy bull ---------- Ah, there's our Milkman now---- he's proved he knows how to pick a bull ----- Come on up here and take charge of this meeting -- Tell us how you do it ----------

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As I understand it, we're here to swap experiences.

I know how I select a bull to head my herd. But maybe that's not the same way some of you men select yours. Let's see how some of you other dairymen choose a bull---------- Joe Freeman, suppose you tell us how you do it ----- (Pause) What's that? ----- Did you all hear that? -- Joe says he just raises a likely looking bull calf from one of his good cows and uses him in the herd -------

Just a moment, Joe ------ This gentleman over here on the right has a question to ask you. (Pause) Did you get that?-- He wants to know what kind of records your cows made in the dairy-herd-improvement association? ---------

Well, he seems to have you there, Joe. If your cows made poor records, we can't give you much on your way of picking a bull.

Now let's hear from this dairyman here on the end of the second row: "How do you select a herd sire?" --------

What? ----- You say you buy a pure bred bull calf and use him for a herd sire. How has that worked? Have they sired good daughters?--- 'By their fruits, ye shall know them', you know ------

"Fairly good," you say ------ I see Ed Murray shaking his head --- He evidently doesn't think so much of that method. He tried it, and wasn't so successful. I think most of the farmers here will agree that that way to select a bull is more or less of a gamble. --------

But, I see Bill Holton on the back seat there.------- Bill, how about you? --- Folks say you know the pedigree of all the pure-blood

dairy cattle in this section of the country --------- How do you select a dairy bull? ---

"Pedigree?" --- You pick them according to the pedigree? ------ What's that? ----- Yes ---- I see --- You go according to the information in the pedigree, especially the production record of the dam of the bull you are thinking of buying -----

Isn't that right? --- Oh, beg pardon I believe you did say you also make a practice of visiting the breeder who has bulls for sale, and of looking over the dams of bull you might buy.

Of course, that's important. Your way is better than some of these others, certainly. But I can beat you -----(As if interrupted) All right? ----- Over here on the left --- Did you want to tell us why you bought the bull you did?

No. No. I can't say a thing for that method.-- This man says he bought his last bull because that bull had won a blue ribbon as a calf in a local stock show.

No. None of you have mentioned the right way to select a bull. Of course, I know a lot of my neighbors around here say I'm just lucky. Anyway I'm getting results. Most of you never believe anything about breeding cattle until you have tried it yourselves, but I don't mind telling you what my idea is, because I can give you some figures to back up my belief.

When I came here four years ago, I had a fair bunch of cows. I knew I had to make my living by dairying. I didn't have any herd bull.

As luck would have it, however, my neighbor, Colonel True, had a five year old bull that was getting a bit cross. I had been buying bulls about as most of you other men seem to be buying them. At that time, however, I was short of cash and didn't have much time to spare. So, as Colonel True had just bought a yearling bull and thought he could not keep two bulls, I borrowed the old bull, for the time being.

The Colonel was satisfied. That bull was hard to handle. The Colonel had already slated him for the butcher.

Well, about that time, the dairy-herd-improvement association records for the year were figured up and I borrowed the Colonel's herd book and did some figuring on my own account.

Here's what I found out. I found from that record that eight daughters of Colonel True's old bull had been on test. Then I began to see a great light. I went to Colonel True and asked him to put a price on that bull. The Colonel said the butcher could do that. Anyway, I bought that old bull for $60. ----- I see some of you smiling ---- You were laughing at that time. You thought it was a great joke ---- me buying that old bull.--- I know some of you thought I was just a

little bit "off" to do it. Some said if I got out of my bargain alive, I'd be doing well. All the time, however, I could see those production figures of those daughters. As I figured it, they averaged 75 pounds more butterfat than their own mothers had averaged. I felt certain I had an exceptional bull.

Well, to make a long story short, I just built a good bull pen with a breeding chute. I never had any trouble handling that bull that way. And if I had my record book here, you could see why I'm "lucky". The first ten daughters that bull sired in my herd averaged 80 pounds more butterfat a year than their dams averaged. I figured that butterfat is worth about $40.00 for each heifer, and I've 15 more to freshen. That's a pretty fair gain, don't you think?

That has taught me a lesson. Right now, I am scouring the country for another proved bull; another bull that has shown that he is able to raise the production of his daughters over that of the mothers of those daughters.

I'm better off now than I was four years ago, thanks to that bull. I mean to spend some money to find another proved bull. If I can't find one, then my next herd sire will have to be the son of a proved bull, and from a good daughter of another proved bull. In looking over his pedigree, I am going to consider the males as well as the females in his ancestry.-------(As if interrupted) What's that? -----What did you say? ------"I want a bull made almost to order?"

Certainly ---Why not? What is more important in breeding livestock. What is worth more care than the selection of the next herd sire?

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ANNOUNCEMENT: Tomorrow our Farm Forum will discuss the uses of timber on the farm. That will be the last meeting until next Monday when we talk about how to mark pigs for identification. If there is no other business, the meeting stands adjourned until tomorrow.

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THE FARM FORUM

Friday, January 18, 1929

NOT FOR PUBLICATION

Farm Forestry Meeting No. 6: Using Timber on the Farm

ANNOUNCEMENT: Members of the Farm Forum will please find seats! --- The meeting will be in order! ---- I guess all of us here want to make more money and save more money. This Forest Service man here says he can tell most of us how to do it, as far as farm woodlands are concerned. I told him we would be glad if he would. All right, Mr. Expert, go ahead and say your say --------

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I don't have to tell you farmers, who have woodlands producing a steady supply of timber of usable size, that you are lucky. I guess most of you have saved money, time and again, by going to your own woods for posts and poles and other timber you need on the farm. By growing your own timber you keep the cash at home.

But you can save still more, by using your timber more economically and to better advantage.--Of course, I realize, some of you do use good judgment. But many of those farmers over in the next county, or over in the next State, are really Babes when they get in the woods.

One thing to keep in mind is that it is good practice to use the lower grades of timber on the farm; and sell the choicer grades. The best grades naturally bring the most money. Yet, you'd be surprised, at some of the things I've seen otherwise intelligent farmers do in the woodlot.

I've seen clear, black walnut used for gateboards. I've seen clear, white oak butt logs worked up into fence posts, because they split easily. Yes, and that was where several farmers could have gone in together and shipped a carload of such logs at fancy prices.

It is a mistake to saw up choice logs of white oak or yellow poplar or ash or cherry or black walnut for rough uses at home. Why, many valuable logs, now used for fence posts and the like, would bring much more if sold as saw or veneer logs -----(As if interrupted) Yes? --- You know of a case, you say? --- Let's have it? ---(Pause)

Did you all hear that? -- This man says he has a friend who took a big white-oak log to the local sawmill. He had it made into thin strips for hoops on a homemade wood silo -------- Now, that was all right. Of course,

in certain cases, like that, the use of clear logs of high value on the farm is all right.

That's the exception, though. And that instance calls to mind a couple of other things. That man taking his timber to the sawmill was probably doing the wise thing. Even though a good many try it, the average farmer is not equipped to get into the sawmill business. Generally speaking, timber as a farm crop should be thought of as including only the rough products, such as saw logs, and poles, and piling, and hewed crossties, and cordwood.

And that brings us to another important point. The right use of timber on the farm begins in the woods. In cutting, keep in mind that the straight, thrifty, fast-growing trees are the ones that will bring the most on the market.

Often, a tree which is a little crooked or full of knots will do very well for use on the farm, when it would bring very little in a timber sale. Small, stunted pines, for instance, make good fence posts, if you creosote them.

If the stand is crowded, thinning out the small, crooked, or knotty trees will improve the woods by giving the better trees more room to grow. Also some of the less valuable kinds of trees --- the kind you can't find much market for --- might do just as well for farm use. Such trees as beech, and birch, and black oak, and black jack oak, and ironwood, and black gum might be in that class. --------(As if interrupted) All right, now then I will answer your question -------What was it? --- "When should timber be cut?"

Well, if rightly handled, you can cut posts, and poles, and logs at any time without affecting their durability. However, timber cut in the late spring and summer needs to be handled with special care to keep from damaging it. That's because freshly cut wood is more likely to be attacked by insects and fungi in the summer than during the cold part of the year. Seasoning also goes on faster during warm weather and may cause too much checking.

But, in no case, should you let wood lie directly on the ground after it is cut. Haul the freshly cut logs or other round stuff, especially the more valuable kinds, to a dry, well-aired place and leave them on skids well off the ground. Paint the ends of logs with yellow ocher or with barn paint. That will help a good bit in keeping back damage from end checking.

It is a good idea to peel freshly cut timber for spring posts and poles. You can do the peeling most easily in the spring, but you can do it any time with an adz or a draw knife.

All farm timbers which come in contact with the ground should be of durable woods, If they are of sap woods, they should be creosoted. That goes for foundation sills, and stable floors, and hog houses, and gates, and poles, and fence posts.

For fence posts, I'd use only the more durable woods, such as black locust, red cedar, white or post oaks, chestnut, and red mulberry, and sassafras. Or else I'd treat the "sap" timbers such as soft maple, or basswood, or poplar or gums, or sap pines with creosote.

And keep the timbers in all the farm buildings as dry as possible. That means keeping up good roofs and strong foundations and keeping soil or other water-holding matter away from the wood as much as possible.

One of the buildings you may need is a woodshed, with a good overhanging roof and an open section all the way around a foot or two higher than the floor to provide the air ventilation. That is for seasoning the fuelwood. Seasoned fuelwood makes more heat.

Of course, I'm assuming that your farm woodland furnishes you the fuelwood you need. That fuelwood is the stuff that can't be used better for other purposes. The dead trees, the sound fallen trees, the crooked, limby trees, and the rotting, fire-scarred trees are the ones which should furnish much of the firewood. When you cut wood for other purposes, however, the tops and branches should be cut for firewood down to the smallest usable size.

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ANNOUNCEMENT: This is the last Farm Forum meeting this week. Monday we will have our regular livestock meeting again and will discuss marking pigs. Tuesday we'll talk over hatching eggs. Wednesday is our regular crop day. Thursday we'll have an expert here to tell us what the consumer wants in dairy products. Then on Friday we overhaul the tractor together.

# # #

UNITED STATES DEPARTMENT OF AGRICULTURE
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THE FARM FORUM Monday, January 14, 1939.

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NOT FOR PUBLICATION

Livestock Meeting No. 16: Marking Pigs.

ANNOUNCEMENT: The Farm Forum will be in order!--- Today, a livestock expert, from the U. S. Department of Agriculture, is going to open the meeting by telling us how to mark pigs. If any of you have any questions, don't hesitate to ask them----- All right, Mr. Specialist, what is the best way to mark hogs? -----

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The best way, Mr. Chairman, depends on the purpose for which they are marked. Some marks can be seen much more easily than others on live animals. But to preserve the identity of hogs after they are slaughtered, scalded and scraped, the best way is to tattoo 'em.

With one swipe of a tattoo instrument, you can mark a hog as he passes you. There won't be any ugly scar, as in the case of a hot iron brand, but that mark will last and show on the carcass after the hog is killed and dressed. It's a real system of identification.

----- I suppose you all know what the tattoo instrument is like. It is made by putting phonograph needles in metal blocks so as to form letters and numbers. By different combinations, each owner can have a distinctive mark for his hogs. For instance, the combination of letters and figures "A2B3" might be the brand of John Smith, Burt, Kansas.

You understand, you brush those needle points with an ink made from oil and lamp black. The metal block fits on a handle. All you have to do is to hit the hog a firm blow so that the needle points prick the skin. As the needles prick the skin, they carry the marking ink into the hog's skin. The carbon doesn't become absorbed, so a permanent mark or brand is left, by which the hog can be identified after slaughter when the hair is removed. The system of tattooing is not intended for use in identifying live animals. ----- (As if interrupted) ----- All right --- there on the second row -- Did you have a question?

"Nicking their ears" you say? Yes, that system of marking by cutting a piece out of the ear is all right in connection with farm records and where the hog stays in the neighborhood where he was raised. But those nicks in his ear have little value when the hog

marked that way gets to the big market centers. There he is mixed with a lot of other hogs. There is no chance to trace him back to the farm from which he came.

That's one of the big points in favor of tattooing, Perhaps, you know how tattooing of hogs made its first big hit. The tattoo instrument has been used for marking hogs for about ten years now, but its real value was not appreciated until about eight years ago.

At that time, it was used quite extensively to mark hogs which were trucked to one of the big Mid-west markets. When a truckload of hogs reached that market, they were tattooed, and the tattoo marks were recorded opposite the name of the owner.

Then, if any of those tattooed hogs showed signs of tuberculosis when they were killed, an inspector was sent to the farm from which the animals came, and arrangements were made to test the cattle.

Some did have tuberculosis. But when the inspectors went to the farms from which those tuberculous hogs came, they got a surprise. To their surprise they found very little tuberculosis in the cattle on those farms. But they found that the poultry on many of those farms were badly infected with T-B.

That gave them another clue. The investigations were extended to other States. Tuberculosis in poultry was found to be widespread in the North Central States. Thanks to tattooing, it was discovered that the T-B in poultry was responsible for much of the T-B in hogs.

Today, many packers are voluntarily paying a premium of 10 cents a hundredweight for hogs grown in regions which have been accredited as having less than one half of one per cent of cattle tuberculosis; providing the hogs have been tattooed so that their origin can be established and the owner notified in case they are found to be affected with tuberculosis. In 1927 this 10 per cent premium on hogs from accredited counties amounted to considerably over $600,000 and for 1928, judging from the information at hand, the premiums probably amounted to more than $1,500,000.

There are now 640 such accredited counties in this country. The hogs raised in those counties are worth millions of dollars. If owners can get 10 cents a hundredweight more by merely tattooing them, they'll certainly get a handsome return for their work.

For, you know, tattooing is a very simple, inexpensive process. It doesn't take much time. An experienced man can tattoo a carload of hogs in a short time. It is usually done when the hogs are unloaded from the owner's trucks.

And by means of tattooing, the grower can keep informed as to the health status of his hogs. How that works can be shown by the figures from a county in the Midwest which used to have a good deal of tuberculosis. Before the hogs from that county were tattooed, 7-1/2 per cent of the county's hogs were found to have tuberculosis. In four years, the tuberculosis was reduced to one per cent. -------(As if interrupted) What's that? ------ "What was that due to?" --- "Not to the tattooing," you say.

No, of course, not directly. It was, however, due largely to the clean-up practiced by the farmers after being informed that they had marketed tuberculous hogs. Tattooing made it possible.

Recently we discovered tuberculosis on a midwestern farm through a shipment of hogs killed under Federal inspection. Unfortunately, when we discovered it more than 100 out of a herd of 140 head of cattle were infected. It was a valuable purebred herd, too. The losses ran into many thousands of dollars. But if the tattooing of hogs had been practiced regularly in that county, we might have discovered it much sooner and saved many of those valuable cows. The losses might have been a few hundred instead of many thousand dollars ------- (As if interrupted) All right? ----- Yes? --- "Is tattooing used for other livestock?"

Oh, yes! -- A different and smaller type of tattoo instrument is used quite extensively by breeders of purebred cattle for marking the ears of calves. Many poultry raisers are also making use of this system for marking their chickens, as a means of identification in case of theft. In fact, the tattoo instrument is the most satisfactory instrument made today for putting a mark on poultry, which cannot be changed. The biggest use of tattooing is, however, for identifying hogs.

If you want to get more details about this system, drop a post card to the Department of Agriculture at Washington and ask for Miscellaneous Circular No. 57-- It is called "The Tattoo Method of Marking Hogs and its Use."

Tattooing of swine will help detect disease in livestock and will be of value in identifying animals which may be stolen. As I said before, the best way to mark swine is to tattoo them.

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ANNOUNCEMENT: That circular was Miscellaneous Circular No. 57. It is called "The Tattoo Method of Marking Hogs and its Use." You can get it for the asking by writing to Station_____, or by writing direct to the United States Department of Agriculture at Washington, D. C.

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UNITED STATES DEPARTMENT OF AGRICULTURE

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LIBRARY RECEIVED JAN U. S. Dep. of Agriculture

THE FARM FORUM Monday, January 21, 1929.

NOT FOR PUBLICATION

Livestock Meeting No. 17: Infectious Abortion.

Speaking Time: 8 Minutes.

ANNOUNCEMENT: The Farm Forum will be in order! ---- We have a serious question before us today. It is the question of infectious abortion in cattle. That disease is important to every stockman, and especially to every dairyman here. And today we have with us a specialist from the U. S. Department of Agriculture to tell us about it. All right, Doctor --------

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That's true. There is no disease of cattle of greater importance to dairy farmers than abortion disease. It directly affects, to a marked degree, the source of our cattle supply; and the very organ of the cow on which our whole dairy industry depends.

As you all know, abortion disease is common throughout a large part of this country. It is especially prevalent in the Eastern, Middle Western, and Pacific Coast States. What's more, it is on the increase. In recent years, it has increased tremendously----- (As if interrupted) -- Beg pardon? --- "How much do the losses amount to?" ----

Well, that's pretty hard - almost impossible-to say. You see, the losses of calves, and the loss of milk flow directly incident to the abortion, the temporary and permanent sterility and other breeding troubles are only part of the losses. We are just beginning to find out about other big losses. The evidence indicates that cows which give well-marked reactions to the abortion tests, even though they do not abort, yield considerably less milk than similar cows which do not react to those tests.-----(As if interrupted) -- What's that? ----"Haven't estimates been made?"

Oh, yes. Approximate estimates have been made by investigators in States where abortion is getting the most attention. According to those estimates, losses in those States vary from one to five million dollars a year. On that basis, the loss for the entire country on account of abortion disease of cattle would run up to fifty million dollars a year.

And mind you, that doesn't cover all the losses which the disease exacts. Neither does it consider the possibility, now indicated, that undulant or Malta fever in human beings is sometimes due to infection by the abortion bacillus from cattle.

However, since many people have been drinking abortion-infected milk for years, a certain unusual strain or strains of the bacillus, or an unusually susceptible person, or both, seem to be needed to start Malta or undulant fever in human beings. Otherwise, there would be more of it.

But, anyway, I am sure you'll all agree that this abortion problem is important -- to the public at large as well as to the dairy and cattle industries.------(As if interrupted) ---- Yes? --- "What is being done about it?"

Many things. We've found out several important facts about abortion, since the discovery of the abortion bacillus back in 1897. We are far from the goal yet, but we are making progress. We have learned something of the habits of the infection. The blood tests have made it possible to detect cases of infection. When we get those tests perfected, they promise to be of almost as much value in the control of abortion disease as the tuberculin tests have been in the control of tuberculosis.

One of our State Experiment Stations is now working on the possibility of breeding strains of cattle immune or highly resistant to abortion. So much has been done in breeding plants resistant to disease, that something can possibly be done along similar lines with animals. They have begun with smaller faster-multiplying animals.

Of course, it will be much harder with cattle than with plants. It will take much more time. The plant breeder has millions of subjects in a single season from which to make selections. Cows, on the other hand, usually produce one calf a year and keeping the calves is an expensive proposition compared to plants. Then, of course, there is always the possibility that dairy cows in gaining resistance to disease may lose some other very desirable quality. I just mention that among the interesting possibilities.

The Bureau of Animal Industry is carrying on experiments and investigations to improve vaccines and vaccination; to find the best and safest vaccine and the best way to use it.

We are also making field studies as to the best way to limit infection; we're trying to see whether it is practical to build up a clean herd from an infected herd by protecting the calves from contact with infected animals after weaning.

But you must remember, that while the great majority of abortions can be traced to the activity of the abortion bacillus, there are some cases which seem to be due to other causes. We don't understand what all the causes are. Some recent investigation seems to indicate that lack of vitamins or mineral substances in the feed may play a part. We're looking into that too.

In fact, men from leading experiment stations and other organizations recently met and mapped out plans of study. There is so much to be done to solve this big problem of infectious abortion, that investigators can work on different phases of it without duplicating the work of others.

Serious as is the situation, it seems almost certain that abortion losses are to a great extent preventable. It seems sure that this disease will eventually yield to investigation. If results can be obtained that will reduce abortions by even a small per cent, the money needed to make the investigations will be well spent.

While waiting for the results of these investigations, cattle owners are reminded that reasonably effective means for controlling the disease already have been developed. Farmers' Bulletin 1536, having the title "Infectious Abortion," gives directions for excluding the disease from healthy herds as well as dealing with it in infected herds. The practical information which the bulletin contains if put into use promptly may prevent serious losses from abortion disease.

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ANNOUNCEMENT: The number of that Farmers' Bulletin is 1536-F, Write for it. This time next week we will talk about feeding livestock, cafeteria style. In the meantime, however, we will have several other Farm Forum meetings. Tomorrow, for instance, is our day to discuss poultry problems. Wednesday, we will talk over some crop questions, Thursday is our dairy day, and Friday we are due to overhaul the tractor.

# # #

UNITED STATES DEPARTMENT OF AGRICULTURE

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U. S. Department of Agriculture

THE FARM FORUM

Tuesday, January 22, 1929.

NOT FOR PUBLICATION

Poultry Meeting No. 17: Fertility and Hatchability.

ANNOUNCEMENT: The Farm Forum will be in order! --- Last week we had a talk on producing hatching eggs. So many members have raised questions about hatching eggs not covered in that talk, that we've asked the expert back. Here he is ready to answer your questions. As you know, he's from the U. S. Department of Agriculture. --- I'll turn the meeting over to you, Mr. Specialist----------

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As I've pointed out before, all the eggs set don't hatch. The number that do hatch depends a great deal on conditions ---- the conditions during incubation and the handling of the eggs before incubation.

You can control those conditions. For one thing, eggs for hatching should be collected twice a day in freezing weather. Then, too, eggs for hatching should be set while they are fresh. You should provide plenty of nests, and produce only clean eggs.

I know that you know these things. But someone has said that we need not so much to be informed, as we do to be reminded. He must have been talking about poultrymen.

Some of them keep forgetting that dirty or washed eggs are not suitable for incubation. Then too, we all know that hatching eggs should be kept in a cool place where there is only moderate air circulation. If possible, the eggs should not be held over five days for incubation. If you have to hold them longer than that, turn them every day. Eggs held for 3 weeks before incubation will hatch very poorly, if they hatch at all.

And, of course, you should select the eggs for incubation carefully. Use only those of good size, shape, and color and shell texture -------- (As if interrupted) What? ---- No. ---- No, not directly. The physical characters of the eggs, as you say, do not directly affect hatchability. But only good eggs should be used so that the chicks hatched will in their turn produce only good eggs. The shape, and size, and color of the egg do not affect the chick. They do affect the market value of the eggs, however. ---------- (As if interrupted) Yes? ---- "The shape and the sex," you say? ---- No. There's no direct relation there, either. Long eggs are just as likely to produce roosters as they are to produce pullets.

The hatchability of eggs is very much influenced by breeding. To make progress in breeding chickens, it is very necessary to select both the males and females for good hatchability. To select for hatchability you need to pedigree the chicks and trapnest the hens. --------(As if interrupted) All right? --- Did you have a question? ---- "How can you improve hatchability in a flock which is not trapnested?"

Well, one way to improve hatchability, where it is not practical to trapnest the hens, is to buy roosters out of hens of good hatchability. And don't confuse hatchability with high-production or with fertility either. Hatchability and fertility do not necessarily go together. And some of the highest-producing hens in a flock fail to give good hatchability. Hatchability is very slightly, if at all, affected by the number of eggs laid.

Now then, both the fertility and hatchability of eggs are affected by the management of the flock. Hens should be fed good breeding rations and should be kept in the best of physical condition.

The rations should be well supplied with vitamins. Green feed and milk are especially good in rations for breeding hens. And, as a rule, the best hatching eggs are secured from hens which have an outside range, even during the winter months.

The hens should get direct sunlight. If there is not plenty of sunlight to be had, you should put tested cod-liver oil in the ration. Housing conditions which allow combs to freeze will cut down fertility. A rooster whose comb has been frozen will usually not fertilize eggs again for about two weeks.

You can get good fertility either from roosters which have been allowed to mate with a moderate number of hens throughout the year or from those which have been kept separated from the hens until 3 or 4 weeks before the breeding season.

The pens should be mated some time before you need the hatching eggs, so that the rooster will get used to his new quarters. You may get fertile eggs in three or four days after the roosters are put in the pens, but you can't count on it. The roosters should be in the pens at least a week or ten days before good fertility can be expected. -------(As if interrupted) What say? ----"How many to a mating?"

Well, a Leghorn rooster should be mated with about 15 hens. Bigger roosters should be mated with about 12 hens. You usually get better fertility in big flock matings than in individual matings of roosters and you can use a bigger proportion of females in the group matings. -------(As if interrupted) Which? ---- Which give the best fertility.

The smaller breeds, such as the Leghorns, usually do better than the larger. Young roosters do better than older ones, especially earlier in the season. Early hatched roosters are especially good to mate with flocks for hatching eggs when you need the eggs early in the season. Yearlings also give good fertility. But for average stock, two seasons are as long as roosters should be kept.

The fertility of eggs cannot be told by the looks of the yolk until the egg is incubated. So it is always a good plan, to incubate eggs and test them for fertility, so you can replace any roosters which fail to fertilize. -------(As if interrupted) ---- What say? --- "How many?"

Well, securing ninety to ninety-five per cent fertile eggs is good for Leghorns. Something less than that is considered good for the larger breeds. That means that about one-tenth of the eggs set are infertile. They are a total loss as far as hatching is concerned. That loss due to infertile eggs is a big factor in poultry raising.

The fertility of eggs is affected by the time of the year, by the breed, by the age of the chicken and by the management. In other words, it is affected by things which are largely within the control of the poultryman.

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ANNOUNCEMENT: This time next week we will take up the question of buying baby chicks. However, there are several meetings between now and then. Our Farm Forum has its crop meeting tomorrow. Thursday is our dairy day. Friday, we'll overhaul the tractor. And then next Monday we'll feed the livestock, cafeteria style.

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UNITED STATES DEPARTMENT OF AGRICULTURE

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THE FARM FORUM (Region 1) Wednesday, January 23, 1929.

Crops and Soils Meeting No. 17a: The Manchu Cherry

ANNOUNCEMENT: The Farm Forum will be in order! --- If Jed Hawkins will throw a chunk of wood in the stove, we'll go right ahead with the meeting. We have a plant expert from the U.S. Department of Agriculture with us today. He tells me he has something important for us. He tells me he is going to talk about the Manchu cherry. All right, Mr. Specialist, what about the Manchu cherry? -------

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--- Mr. Chairman ---- and gentlemen! ------

As you all know, the white pine blister rust threatens the destruction of our five-needle pines.

Those pines are important. Fortunately, we now know that the parasitic fungus which causes the blister rust cannot attack five-needle pines until it has gone through a period of development on currant and gooseberry plants.

We are now engaged in a great campaign against the growing of currants and gooseberries in any region where white pines are growing. The pines are vastly more important than the currants and gooseberries, so the currants and gooseberries must go! ------- (as if interrupted) Beg pardon? ------ "Manchu cherry?"

Oh, yes --- so I did. I did say I was going to talk about the Manchu cherry. --- And that's what I'm talking about.

The Manchu cherry may meet the demand for a fruiting shrub to take the place of those currants we've had to get rid of. The better fruiting varieties of the Manchu cherry may be of real value for that purpose.

During the past ten years, repeated tests in North Dakota and in Canada, have shown that the Manchu cherry can stand more cold and is adapted to growing under more adverse conditions than any varieties of either the sweet or sour cherry known at the present time.

Furthermore, the foliage of the Manchu cherry seems to be resistant to the leaf diseases of our commonly grown cherries. ---- (As if interrupted) What say? --- "Are they good to eat?"

Sure they are. They've been eaten in China since way back there. It's true, however, in this country, the Manchu cherry has only been cultivated as a hardy ornamental, until comparatively recent years. But ripe Manchu cherries are not only edible, they have that agreeable cherry taste. And they make first-rate jelly of an attractive red color. In China, I understand, the unripe cherries are pickled in salt or boiled in honey and served

as a delicacy. -------(As if interrupted) Yes? --- "How does it grow?" did you ask?

Well, the way to get a good idea about that, is to follow our plant hunters to the native home of the Manchu cherry. The Manchu cherry is one of those valuable additions which plant explorers in other parts of the world have discovered for us.

Manchu cherry seed were first sent to this country over forty years ago from Peking, China. As a result of that importation, seeds of this dwarf bush cherry were successfully established at the Arnold Arboretum near Boston and at Rochester, New York, and at Ottowa, Canada. The United States Department of Agriculture got its early seed and cuttings through the work of one of its famous plant hunters who tramped for years over the hills and valleys of northern and central China looking for plants which might have value in the United States.

The Manchu cherry grows throughout northeastern Asia from southern Manchuria west and south to Tibet and the mountainous territory north of India. In general that's a region of cold winters and little rainfall:

The plant explorers say that, under favorable conditions, the Manchu cherry forms a vigorous, wide-spreading shrub up to eight feet high and twice that wide. In the mountainous regions of Manchuria, the Manchu cherry grows on the hillsides as a low bush. In the plains regions, however, it is somewhat bigger. In the plains regions, it thrives on the edges of shifting sand dunes.

These bushes have dark, dull-green leaves two or three inches long which are very hairy on the under side. In the spring, the flowers come out before the leaves and are white tinted with rose and about three-quarters of an inch across. The large numbers of these blossoms with their red stems and outer petals give the shrub a very handsome appearance.

In Massachusetts, the Manchu cherry blooms early in April, and bears the crop of cherries in midsummer. ------- (As if interrupted) All right? --- Beg pardon, I misunderstood you. Now, as I get it, what you really wanted to know was not how the Manchu cherry grows, but how you can grow it. Is that it? ----

Well, the most satisfactory way to propagate the Manchu cherry known at present is to bud or graft a selected variety on seedlings of the original Manchu cherry species known as Prunus to-men-to-sa. When it is intended to grow the bush as an ornamental, or where material is wanted for selection seed are used. However, owing to the tendency of the seeds of this hardy cherry to germinate at rather low temperatures, in regions of milder winters, growers sometimes have trouble keeping the seeds from sprouting too early.

Except in places where severe winters are the rule, it is better not to stratify the seeds at once, as is done with cherry seeds, but to keep them dry until late fall and then sow them either in the field or in flats.

Greenwood cuttings of the Manchu cherry root readily in sand in partially shaded cold frames under outside conditions, if taken between May 15 and June 20, according to the Boyce Thompson Institute for Plant Research, at Yonkers, New York. ----(As if interrupted) Yes? ----- Yes, that's right. I did mention selecting varieties to use.

That's rather important, too. You see among seedlings of the Manchu cherry there is considerable variation in the habit of the bush and in the quantity, and quality, and size and time of ripening of the cherries. Normally, Manchu cherry bushes produce a big crop of flowers. Most of the commonly grown plants, which were grown from seedlings, however, bear only a small crop of cherries.

For that reason, the United States Department of Agriculture is now making selections of desirable seedlings in Maryland and North Dakota. The New York Experiment Station is doing similar work at Geneva, New York. The plant breeders at those places are working to get big-fruited hardy Manchu cherries adapted to particular localities in this country. They have also found that the Manchu cherry will cross successfully with several other species of the cherry and plum family. We may get what we want that way. As I said, the Manchu cherry may replace in part, at least, the currants grubbed up on account of the white pine blister rust.

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ANNOUNCEMENT: Tomorrow the meeting of the Farm Forum will concern itself with what the consumer wants in the way of dairy products.

UNITED STATES DEPARTMENT OF AGRICULTURE
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U. S. Department of Agriculture

THE FARM FORUM (Regions ~~1~~ 3 and 2) Wednesday, January 23, 1929.

NOT FOR PUBLICATION

Crops and Soils Meeting No. 17d: Cabbage Disease Control.

ANNOUNCEMENT: The Farm Forum will be in order!-- The cabbage growers among us have asked the program committee to give us something on how to control cabbage diseases. The Committee asked an expert from the U. S. Department of Agriculture to talk on that question. Here he is. And here we are. Let's hear what we can do to cut down the losses from cabbage diseases, Mr. Specialist.-----

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Cabbages are not native to America. They were brought over from the old world.

Our wild ancestors, in the wilds of western Europe, used to eat wild cabbage ages ago.

That wild cabbage was a healthy and vigorous plant. Through long centuries of cultivation, many varieties of cabbage,and cauliflower, and Brussels sprouts, and kohlrabi, and kale, and collard have been developed from it. All those plants trace back to that wild cabbage of Europe.

In the meantime, our descendants of the wild cabbage of Europe have picked up a number of diseases. In their new forms and new homes they don't seem to be able to stand off disease as well as their wild ancestors did --- For instance, I guess you all know something about the cabbage yellows; that is what makes some of us wild.

Cabbage yellows is an American disease. It is not known in Europe. Apparently cabbage was not subject to the fungus causing it until the cabbage plant was introduced into America. ----- (As if interrupted) "Why?" "Why is there more disease now than there used to be?"

Well, we usually look for the severest epidemics of human disease where the most people are crowded together. It is much the same with plants. Plant diseases are most destructive where crops are grown most intensively. ------- (As if interrupted) ----- "Control?" --- we'll get to that in just a moment ---

Cabbage plants have many fungus and bacterial diseases. Some of those diseases don't amount to much. Others, such as yellows, and black rot, and black leg, and club root, cause big losses every year.

I guess you all know the symptoms of those diseases. In club root, there are large swellings on the roots, which absorb so much of the plant's food as to prevent proper heading. In yellows, the disease also starts in the roots, but it works up the water vessels which turn brown as they become filled with poison. That causes the leaves to turn yellow and drop off. The cabbage plants may die of yellows in a few weeks. Black rot starts on the edges of the leaves, turns them yellow and follows down the veins to the main stem. Eventually it gets all through the plant. Black leg, on the other hand, is primarily a disease of the lower shem and root. The stem decays and the fine roots are completely rotted away. That leaves the plant practically without feeding organs.

Now each of those diseases is caused by microscopic parasites. There is a different kind of parasite for each different disease. Most of them are parasites which attack only the cabbage or mustard family of plants. All of them live over from season to season in the soil. --- Now then, what does that suggest to you?

Doesn't it look as if rotation would be a good thing? Doesn't it seem that you might be able to starve out those parasites by rotation of cabbage with other crops not closely related to cabbage?

Well, rotation is one of the ways to control cabbage diseases. The parasites which cause yellows and club root, however, hold over in the soil for many years even when there are no cabbages or their relatives around. But for some other diseases, rotation is first among control measures.

Some of the germs, such as those causing black leg and black rot attack the seed. Those diseases are carried from year to year and from place to place with the seed.

The practical meaning of that fact is plain. Plant disease-free seed. There are two ways you can get disease-free seed. One is to get seed grown near Puget Sound. So far as we know now Puget Sound grown seed is free from black leg and black rot. The other way to get disease free seed, is to disinfect them before you plant them. To do that put them in a water bath and keep them under water at an even temperature of 122 degrees F., for 25 to 30 minutes. Let them dry before you sow them.

Be very careful about using cabbage plants unless you are sure that such precautions have been taken. Very often plants which look perfectly healthy when you set them out, carry the invisible germs which make trouble later.

Don't use surface water from streams or ponds for transplanting. Such water may contain the germs which will kill your cabbage. Spring or well water is much safer.

Where club root is prevalent, you should give the land a heavy application of finely ground hydrated lime before you transplant. ----- (As if interrupted) "How much?"

Oh, the amount will vary with the soil. Better consult your county agent on that point.

But none of those things do much good in the case of yellows. --- What? --- "Is there nothing you can do?"

No. I wouldn't say that. Although neither soil treatment nor seed treatment nor rotation nor any of those things will control cabbage yellows, there is something you can do.

Thanks to the U.S. Department of Agriculture and the Wisconsin Experiment Station, we now have developed several varieties of cabbage highly resistant to cabbage yellows. The way to keep down cabbage yellows is by using those resistant varieties. But remember, those resistant varieties are only resistant to yellows. To control other diseases, you must follow those suggestions we just made. --- (As if interrupted) What say? -- "What are their names?"

Well, you will find Wisconsin Hollander the best cabbage for your late crop and for storage. For kraut making, Wisconsin All-Seasons, is first-rate. For earlier maturing, you can use either the Marion Market or Globe for shipping and for market; and the All Head Select for kraut.

We are also now perfecting resistant strains of Golden Acre and Jersey Wakefield. But they will not be on the market for about two years. You will find them listed by a number of seedmen, but if you can't get them, better consult your county agent or write your State experiment station, or the United States Department of Agriculture for a list of available sources.

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ANNOUNCEMENT: Tomorrow our Farm Forum will consider what the consumer wants in the way of dairy products. And Friday we'll overhaul the tractor. This time next week, we'll see what we have to do to live with the corn borer. It looks as if that is what we will have to do.

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THE FARM FORUM (Region 4) Wednesday, January 23, 1929.

NOT FOR PUBLICATION

Crops and Soils Meeting No. 17b: The Chinese Elm

ANNOUNCEMENT: The Farm Forum will be in order! --- The first thing on our program today is a talk by a tree-man from the U.S. Department of Agriculture. He says he is going to tell us about a promising shelter-belt tree for the Great Plains. In that case, I guess his talk would be in order, no matter who had the floor ------ All right, Mr. Specialist, we're waiting for that tree.

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Well, the most promising shelter-belt tree for the Great Plains is the Chinese elm.

As a shade, and windbreak, and avenue tree, the Chinese elm is the most successful introduction we've ever tried.

Its natural habit of growth makes it valuable as a windbreak. A recent report from one of our explorers in Manchuria says that the Chinese elm is used in Manchuria for hedges two to three feet high. In some cases, it is used for screens up to 12 to 15 feet high. It is also used for formal plantings, the trunk being trimmed of branches up to 6 to 8 feet above the ground, and the top part of the tree being trimmed to a conical shape. In the last few years, hedges of Chinese elm have been successfully developed in this country. If you keep the trunk trimmed, the Chinese elm grows up like a tree and makes a splendid shade or avenue tree.

The Chinese elm is hardy and fast growing ------(As if interrupted) Just a moment -----What was that you said, over here on the left? ------ What? ---- "Why go to China for our trees?"

Well, the answer to that is that we stand a good chance of getting what we want there.

China is a big country. It has got a lot of different kinds of climate. In fact, in China, you can find a close counterpart for any given section of the United States. And, you know, the Chinese have been farming longer than most other folks. The plants growing there have been there for centuries. That being the case, there is probably a very good reason for those there now.

Now this Chinese elm, we are talking about, grows over a wide range of soil and climatic conditions in its native home. It was sent to this country first in 1908 by one of our plant explorers ---------- (As if interrupted) --- What's that? --- "The American elm?" ------- "Is it like the American elm?"

Well, the Chinese elm doesn't develop the heavy framework of the American elm; but it is a fast grower with slender, almost wiry branches. The leaves are more rounded and smaller than the leaves of the American elm.

If you let a Chinese elm grow the way it wants to, it develops a number of branches along its trunk. It makes a rather dense growth from near the base. In some cases, Chinese elms look like big shrubs. It is one of the first trees to put out its leaves in the spring, and about the last to shed its leaves in the fall. All through that long season, the leaves stay a beautiful green. They are remarkably free from the usual plant diseases and insect damage so common in many of the other elms. -----(As if interrupted) Yes? --- "Did I say it was hardy?"

I certainly did. It is very hardy. You see we've had it long enough to know something about it. It has proved valuable under a bigger variety of climate and soil conditions than any tree yet brought into this country. It has proved winter-hardy in most trials in the Dakotas, in Minnesota, in New York, in Montana, and in other northern States.---------(As if interrupted) Beg pardon, what are you shaking your head about? --- What's that? ---"Twig injury?"

Yes, that's true. In some localities, there has been some slight twig injury. But that has only been on the smaller branches. That seems to be due to the late growth Chinese elms make. Because of that late growth, some of the twigs are not fully ripened when the first freeze comes in the early fall.

But, as I say, that injury is confined almost entirely to the very small twigs. It doesn't seem to hold back the development of the tree. It may have a tendency to cause more branching, and so produce a denser tree.

What a lot of farmers out our way like about the Chinese elm is that it is very resistant to drought, and to alkali, as well as to extremes of temperature. In the Great Plains, where shade trees are few and far between, we can count ourselves lucky that the explorers located this tree for us. And so can we in the semiarid South and Southwest, in fact, in almost any part of the continental United States.

Just to show you how fast the Chinese elm grows, a man at Bridgeport, Nebraska, planted Chinese elms which were not over 3 feet high and about the size of a lead pencil. That was May the first, 1918. On November 1, 1921, three years and six months later, those Chinese elms were 16 to 19 inches in circumference and from 15 to 25 feet high, by actual measurement.

A tree planted at Hays, Kansas, in 1913 is now 46 feet high and 21 inches in diameter ------(As if interrupted) How? ---"How is it propagated?" you mean?

Oh, the Chinese elm can be propagated either from root or stem cuttings, or by seeds and piece-root grafting. The easiest and cheapest way is to use seed when you can get them from your own trees or can buy them at a reasonable price. Experience so far in growing plants from stem cuttings indicates that wood of the new growth taken early in the season is the most reliable. Young root cuttings also root readily. --------(As if interrupted) What? ----"Where can you get seed?"---

Well, some of the earlier plantings of the Chinese elm in the United States are now producing seeds. A good domestic supply should soon be available. You won't have to go to China for them.

Remember, however, that elm seeds don't keep their vitality long. For that reason, they should be planted shortly after they are harvested, when that's possible. When you have to keep them some time, store them so they won't dry out.

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ANNOUNCEMENT: Tomorrow our Farm Forum will take up the question of what the consumer wants in dairy products. Friday we will overhaul the tractor. This time next week we'll talk about weevils in wheat. If there's no other business, the Farm Forum stands adjourned until this time tomorrow.

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THE FARM FORUM (Region 5) Wednesday, January 23, 1929.

Crops and Soil Meeting No. 17c: The Quetta Nectarine.

Speaking Time: 8 Minutes

ANNOUNCEMENT: The Farm Forum will be in order! --- We have with us a specialist of the U. S. Department of Agriculture. Since the Quetta nectarine has been coming to the fore recently, we've asked him to say something about that. Tell us what the prospects of that nectarine are from a commercial standpoint. We're waiting, Mr. Specialist --------

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As you all know, the commercial production of nectarines practically stopped in California a few years ago. But, as the Chairman just said, nectarines are now coming to the front again.

The Quetta nectarine seems to be leading in this matter. Several hundred acres have been planted to Quetta nectarines for commercial use.------

"Why the Quetta?" you ask. Well, the answer to that is that the Quetta nectarine is a high-quality, handsome-looking fruit. And, most important of all, it stands long-distance shipment well. You know, most nectarines are poor shippers. The shipping quality of the Quetta gives it a big advantage over other nectarines.

Yes, sir, I'd say the prospects of the Quetta as a commercial fruit in California are bright. That is, they are if the production is not overdone. But before planning your planting of Quetta nectarines, you want to keep in mind that they can be grown in other sections.

Missouri, Illinois, Indiana, Ohio, Kentucky, and Tennessee, and most of the cotton-growing states can grow Quetta nectarines. And in those sections, it would seem well worth while for folks to grow them in the home fruit garden, and in small orchards for local markets. Of course, it will probably be some time before enough nectarines are grown in those sections to cut much figure. But eventually Quetta nectarines from those sections, may help limit the market for those from California. ---------(As if interrupted) --- What's that? ----- "What is a Quetta nectarine like?"

It has all the qualities of a first-class peach, with the added advantage of having a smooth skin, and handsome coloring, and a rich fruity odor. That's another important thing to remember, if you are considering the growing of nectarines on a commercial scale. The Quetta nectarine will take the place of the peach in the diet. So you see, it will come into competition with peaches in the markets ---- (As if interrupted) How's that? -- "Can you can it?"

Well, just off-hand, I'd say you can. So far, no elaborate tests have been made on the canning of the Quetta nectarine, but I can see no reason why it shouldn't be used that way. And it is especially good when eaten out of the hand or when sliced as a breakfast fruit.

The fruit of the Quetta is big for a nectarine. It is from 2-1/4 to 2½ inches in diameter. Generally speaking, the color is a yellowish green, speckled and irregularly streaked with red. Sometimes, however, the Quetta is almost all red. The skin is smooth and not easily broken; that helps make the Quetta nectarine attractive and a good shipper.

I don't have to mention the inside of a Quetta nectarine to anybody who has ever tasted one. You can't help but notice the fine texture and firmness of the flesh, when you bite into it. It's a cling. The flesh is yellowish white and streaked with red near the seed. ---- And juicy! ------ Oh, my! --- and ---- and ---sprightly!----- But the most striking thing about it, is that rich, fragrant fruity odor. That smell hangs around anything a Quetta nectarine touches. It is like a breeze through a blooming orchard! ------(As if interrupted)--- "The tree?" Did someone ask about the tree?

Well, the Quetta nectarine is a vigorous tree with a compact head. It is a comparatively early bloomer. And when the mass of flowers are at their best, it makes a handsome ornamental. ----- (As if interrupted) --- How's that? ---- Oh, no.

No, it is like the peach and plum in that. Nectarines like peaches do not come true or reproduce their kind from seed. To get a good nectarine, it had to be propagated by budding. Buds from the selected tree were worked or made to grow on a Chinese wild peach stock which was known to be quite hardy. In that way, we got good, strong, vigorous trees.

You all know the story of how we got the Quetta nectarine, don't you? ---- No?

Well, that name "Quetta" comes from an outpost of the British army in Baluchistan, in northern India. The United States Department of Agriculture, you know, is always on the lookout for new and promising plant immigrants. Knowing that, some years ago, an English army officer, who was located at Quetta, courteously sent us a small parcel post package of nectarine seed.

"I am sending you these seed," he wrote, "because it is about all I can find here. I am sure you must have better nectarines. The only point in their favor is that they stand cold and the trees do not get much water, as no rain falls here from April to December."

That sounded interesting. We looked up the records. We found that in the valley where Quetta is located the temperature often gets up to 100 in the shade in the summer. In the winter, it often drops below zero. Severe frosts continue for weeks at a time. The valley has an elevation of about 5,500 feet with an annual rainfall of about 10 inches. Those nectarines seemed

well worth trying. We sowed the seed at the plant introduction garden at Chico, California. In due course, we got a few small trees from them. A few years later, the seedlings bore fruit. Some of the fruit was poor. Some was fair. But one was very good. We propagated that good nectarine by budding. Buds from the selected tree were made to grow on a Chinese wild peach stock ---- And that is where we got the Quetta nectarine. ----- (As if interrupted) ---- How's that? --- "How to grow it?"

Practically the same way you do peach stock. ---- (As if interrupted) "Can you get stock for planting, now?"

Sure. Quetta nectarine stock is commercially available from several nurseries. The Quetta nectarine has found a place in commercial fruit growing.

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ANNOUNCEMENT: Before the Farm Forum adjourns, let me call attention of our dairy members to the meeting tomorrow. We will have a market specialist here to tell us what the consumer wants in dairy products. And at Friday's meeting, we want you all to be here to help overhaul the tractor.

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THE FARM FORUM

Thursday, January 24, 1939

NOT FOR PUBLICATION

Dairy Meeting No. 17; What the Consumer Wants

ANNOUNCEMENT: Come to order! --- Come to order-r! --- I know members of this Farm Forum want to know what the consumer wants. Sometimes it seems to some of us, he doesn't know what he wants himself. However, we have a market specialist here from the U.S. Department of Agriculture. He should know. And he has agreed to tell us --- What does the consumer want in the way of dairy products, Professor? ---

******

I'm glad to see dairymen paying attention to the "wants of the consumer."

One thing is certain; if you want the consumer's wants to increase, you have to pay attention to what those wants are.

If volume of sales is to increase, you should keep in mind that consumers prefer high quality dairy products. There's no shadow of a reasonable doubt about that!

Along with quality, you should give the consumer satisfactory service. Quality and service are the basis for building a business through satisfying the consumers' wants.

I know that sounds rather general. Let's get down to particulars. As I said, the consumer wants, he prefers, a product of uniform and dependable quality ------- (As if interrupted) ----- What's that? --- "What do I mean by uniform quality?"

Why, quality which is practically the same at all times. Such a quality is dependable. It gives satisfaction, because after the consumer gets used to that quality he doesn't think of other qualities. In dairy products, he wants high quality. By that, I mean he wants a fresh, pure, sweet, and wholesome dairy product.

In the case of butter, for instance, the consumer expects that sweet, pleasing, creamy flavor which characterizes high quality butter. In the case of cheese, they want that flavor of cheese which develops in the normal process of curing or ripening cheese made from clean, sweet milk.

Yes, the wants of consumers with respect to various dairy products are very definite.

In the case of milk, the consumer wants a bottle which shows a good deep cream line. That is, he wants a good portion of cream at the top of the bottle of milk. He wants his cream and milk to have a sweet, creamy flavor ------- (As if interrupted) Beg pardon ----- What did I hear somebody snort? --- "Can't always produce that kind?"

Well, I think you can. Such milk asthat can be produced on practically every farm in this country. That is, it can be; if clean, sanitary methods are used in producing it; and if the milk utensils and bottles are properly sterilized; and if the milk is cooled immediately after it is produced. Of course, eternal vigilance as to those things is needed if you expect to produce uniformly high-quality milk.

And, as I was saying, the consumer wants a bottle of milk which is free from sediment in the bottom of the bottle and free from foreign odors, such as may be found in milk when cows are allowed to run on weedy pastures or given tainted feed in the stable.

Most consumers nowdays want their bottle of milk pasteurized, particularly if they live in cities and the milk comes from some unknown source in the country. And there is a distinct value in having the milk pasteurized. Properly pasteurized milk is safer and better milk to use from a health standpoint.

As you all, no doubt, realize, consumers have become much more critical in their butter wants in recent years. Just a few years back, ordinary to good quality butter was generally considered satisfactory by most consumers ----- but not nowdays.

Today consumers demand high quality butter. At the present time, there is an increasing demand for sweet cream butter; that is, butter made from practically sweet cream.

A number of years ago, the Bureau of Dairy Industry of the United States Department of Agriculture carried on a great deal of experimental work as to the keeping quality of different kinds of butter. The Bureau's men found that sweet cream butter ordinarily keeps better than butter made from sour cream.

I suppose most of you recognize that fact now. Each year, more and more sweet cream butter is being made to supply the wants of consumers for that kind of butter.

Consumer wants as to cheese are not so clearly defined. Cheese is marketed fresh, or partially cured or as cured or aged cheese. Many consumers prefer that sharp flavor they get in aged cheese. As a general rule, however, consumers object strenuously to cheese which has an unclean or undesirable taste or smell, for such cheese is the product of milk which has not been properly handled on the farm or in the cheese factory.

We are such ice cream eaters that ice cream is called the great American dessert. In a year's time, on the average, each person in this country eats about 2.8 gallons of ice cream. That would be quite a bit for one person to eat at a sitting. There are about 20 dishes of ice cream to the gallon. That makes 56 dishes of ice cream eaten by each person in a year's time. Spread out over the year, however, that is only one dish of ice cream every week, with a few extra for the Fourth of July.

You see ice-cream is not standardized. Ice-creams differ considerably, according to the materials used in them and the way they are made. But in spite of that, we know in a general way what consumers prefer in ice-cream. As a rule, they want ice-cream moderately high in butterfat rather than one low in butterfat. Consumers also prefer an ice-cream which has a good,firm body to one which is grainy and weak and watery. They also prefer an ice-cream which shows a rather definite characteristic sweet creamy flavor.

The average person in this country, as I said, now uses 2.85 gallons of ice-cream a year. He uses 14.2 pounds of condensed or evaporated milk. And 4.2 pounds of cheese. 17-1/2 pounds of butter. And 60 gallons of whole milk.

Of course, that implies that some eat much more than that. Others much less. Some folks have just naturally got a bigger appetite for milk products than others. The reason some use more is because they can buy and pay for the quantity and quality they want. Then too, some people understand the actual economy of buying dairy products. They appreciate their actual high food value.

Now if all users of milk and milk products used as much as the big milk users, the average would be much higher. The demand for milk would be bigger. The market would be better. In order to increase the use of dairy products, however, we must give the consumer what he wants -- and that is uniformly high quality dairy products.

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ANNOUNCEMENT: This time next week we will talk about the value of dairy herd improvement associations. But there will be several other meetings between now and then. Tomorrow we overhaul the tractor, please remember.

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THE FARM FORUM

Friday, January 25, 1929.

NOT FOR PUBLICATION

Farm Engineering Meeting No. 17: Overhauling the Tractor.

ANNOUNCEMENT: Come on, you Farm Forum members! --- Gather around closely! --- Here is the tractor ----- And here's our Farm Engineer -- He has agreed to give us a little general talk about overhauling the tractor --- Tell your tractor troubles to the Doctor here --- Step on it, Mr. Engineer -----

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I can remember when an occasion like this would have started some plain and fancy cussing. And considering the machines then, you could hardly blame any farmer from getting all heated up. But tractors have been improved, during the past 15 years. The honest truth is, that, in many ways, tractors have reached a high state of perfection.

But even so, there's always a certain amount of wear on a machine. That means that, sooner or later, parts have to be replaced or readjusted. Improper care either in lubrication or operation of the tractor results in too much wear.

The life of a tractor, and its efficiency, and its reliability depend on its mechanical condition. When you want a tractor you want it. You don't want to have to stop for repairs. Field work won't always wait while you tinker around trying to fix the machine. Many a crop has been damaged -- many a farmer has lost money -- on account of the tractor balking when there was rush work to do.

The way to avoid such troubles is to keep the tractor in first-class condition. The way to do that is to give the tractor a thorough overhauling once every so often.

Of course, a tractor may run along nicely for several seasons without a great amount of attention. I have known them to do that, and then to snort and go dead right in the middle of a rush job. The farmer who depends entirely on his tractor and wants to keep it running right on through the rush seasons, should overhaul it in the slack season. Periodin overhauling is the best insurance against poor working and expensive delays.

Little troubles, which may not seem to amount to anything at first, gradually get worse. In many cases, those little troubles are responsible for bigger troubles later on. For instance, a loose connecting rod bearing, if not tightened in time, may be responsible for a flattened crank, or a broken or bad shaped bearing. By setting up too much vibration, it will cause other troubles too.

Yes, many troubles of tractors can be overcome by simple adjustments, if you make them in time. If you let them get worse, you have to replace parts and use up a lot of time and labor setting things right again.

And oftentimes a farmer will fool himself about a motor, if he doesn't know motors. The motor may seem to be in fairly good condition. He may not have any trouble running it. Yet it may be working very badly.

Not enough compression in the cylinders, poor timing and adjustments and lack of oil will cut down the power and cause overheating. Troubles of that kind may not force you to stop operations, but they are the same thing as expensive delays. They will also shorten the life of the tractor. ------- (As if interrupted) Yes? ----- All right? --- What's your question, now? ----- "How often?"

Well, under usual working conditions, the tractor should be completely overhauled once a year. By 'completely overhauled' I mean taken down so that all parts may be inspected, and replacements made when they're needed, and so the wear can be taken up by proper adjustments. ------- (As if interrupted) ----- What say? --- "Have to be an expert?"

Well, you should at least know the principle of the engine. And you should have considerable practical experience. Unless you know your tractor thoroughly, I'd advise you to hire a competent mechanic to help with the work.

Loss of compression is probably the most usual motor trouble. It is caused by leaky valves or worn pistons. The valves should be ground to a perfect seat and the pistons and rings should be carefully inspected. New pistons and rings should be accurately fitted to form a seal.

Loose bearings, especially those along the power shafts, lead to serious troubles. They should be properly adjusted at the time the wear doesn't amount to much.

All gears are subject to too much wear, if they are not adjusted properly. That's particularly true of those in the transmission and differential. Any wear in the bearing, causing looseness on the shaft or end play should be corrected.

If the timing gears for the valves and ignition are not marked, when you dissemble the motor, you should score them with a center punch, so they can be properly meshed when they're reassembled.

You should check other minor adjustments which may be classed as field adjustments.

Thoroughly clean out all old oil and grease. Get out all the dirt and metal particles by cleaning with kerosene or gasoline.

Here are four things I always keep in mind in handling my tractor. They help to insure a thorough job of it.

First, keep all parts scrupulously clean.

Second, keep all bolts, nuts, and parts in clean boxes according to the sections of the machine.

Third, systematically check all bolts and nuts after assembled to insure that cotter keys or lock washers are in place.

And Fourth, never rush a job to the extent that something is likely to be neglected.

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ANNOUNCEMENT: Next Monday, the question before our Farm Forum will be that of feeding livestock, cafeteria style. Tuesday we will take up the buying of chicks. Wednesday we will consider some insects. Thursday, we'll go into the value of the dairy-herd improvement association, and Friday, we'll discuss the value of price analysis to the farmer.

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THE FARM FORUM

Monday January 28, 1929.

NOT FOR PUBLICATION

Livestock Meeting No. 18 Livestock Feeding, Cafeteria Style.

SPEAKING TIME: 8 Minutes.

ANNOUNCEMENT: The Farm Forum will be in order! --- No, I should have said, the Farm Forum is in order. Evidently, you men know what's coming. It seems to me that all we have to do is mention feed to get out a crowd. ----- You see for yourself Mr. Feeder, the meeting is ready to hear what the U. S. Department of Agriculture thinks about feeding livestock, cafeteria style.

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Feeding livestock cafeteria style is letting them feed themselves. The stock help themselves, when ever they want to eat. The farmer fills his self-feeders and hay racks at odd times. Then he goes about his field work and doesn't have to stop for a feeding time. Any time is feeding time.

Self-feeders save work. Now, you know what that means. Labor is one of the chief items of cost in producing any farm crop. And these days, it is a troublesome item, too. Reliable farm help is scarce. Labor-saving devices which you can use on your farm will help lower costs of production. Everything else being equal, if you lower your costs of production you increase your profits.

Right here, I'd like to tell you about those tests we made on sows and pigs on our experiment farm. You know, the U. S . Department of Agriculture has an animal husbandry experiment farm at Beltsville, Maryland. Well, on that farm, we decided to investigate the possibilities of using self-feeders for sows and their pigs during the suckling period.

We found out that sows and pigs can be carried through the suckling period on self-feeders with less feed, and in better condition, with a saving of both labor and feed, and that the pigs can be put on the market at an earlier age. ----(As if interrupted) Yes? ---

Oh, yes. You see we had two lots of pigs in that experiment. One lot we fed by hand, and the other lot got their feed from self-feeders. And, as I say, both the sows and the pigs on the self-feeders looked better and were more thrifty than the sows and pigs in the hand-fed lots.

The feed cost, per 100 pounds of gain, was considerably less in the self-fed lots than in the hand-fed lots. Here are the figures: In the self-fed lots it took a total of 441 pounds of feed for each 100 pounds gain in weight by the pigs. In the hand-fed lots 603 pounds of feed were needed.

The average daily gain for the pigs on self-feeders was a pound and a fifth. For the hand-fed pigs it was less than a pound.

That gives you some idea of how self-feeders work with sows and suckling pigs. Of course, self-feeders have been used much longer with older animals. The stock help themselves. They make their own selection of feed. They balance their own rations, provided you put the feeds with which they can do it into the self-feeders.

You need not worry about their overeating. They seldom do that. And what's more, on self-feeders they keep growing steadily. Steady growth is essential for thrifty breeding stock and for well-fattened market stuff.

Then, besides the advantage of being able to fill the self-feeders and racks at odd times, when it is most convenient, there's another advantage. With self-feeders, the weaker and smaller animals get their chance at a full feed. Take hogs for example. All of you know some hogs are very hoggish. Big, aggressive hogs often crowd away the weaker animals and prevent their getting their share, when they are fed periodically in a trough. With a self-feeder, however, there is always a second-table well-supplied. The smaller, weaker animals have plenty of chance to get theirs when the big hogs are not around. They can bide their time and go to the feeder when the others have had their fill.

For very young animals it is a good plan to provide a creep, built so the old animals can't get in. In the creep, the young growing animals can be given feeds particularly suited to growth.----------(As if interrupted) --- What's that? ----"How do you build it?"

Well, I'd advise you to get Farmers' Bulletin No. 1490-F. It gives detailed directions for building hayracks, and creeps, and self-feeders for hogs on the farm. It is issued by the U. S. Department of Agriculture and can be had for the asking. It is called "Hog-Lot Equipment."

Hayracks are great savers of feed with both hogs and cattle. They prevent the animals from trampling so much hay underfoot. Not only that, but the leaves of alfalfa, and soy beans, or clover will collect in the bottom of the rack and so be saved. Those leaves are the most valuable part of the hay; but when hay is fed on the ground, or from stacks, the leaves are shattered and trampled and wasted.

In beef-cattle production, self-feeders are used mostly with young, growing stock; but nowdays they are being used more and more for fattening cattle for market.

Of course, with beef cattle the most critical time in fattening is the early part of the feeding period. You have to start the steer very gradually on fattening feeds. You can control that better, if you feed two or three times a day rather than let the animal get to an unlimited supply of feed in a self-feeder. However, as soon as the cattle get on full feed, you should have very little trouble with a self-feeder.

The self-feeders should be built with an overhanging roof to keep rain and snow out of the feed. They should hold enough, so you won't have to fill them often. With a movable board, held with thumbscrews you can regulate the flow of feed quite accurately. Of course, the size of the opening of the slot made by that movable board will depend on the character of the feed. In the case of self-feeders for hogs, many stockmen put the feeders on a platform, so as to prevent all possible waste of feed. But you can get all that from that bulletin I mentioned.

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ANNOUNCEMENT: The number of that bulletin was Farmers' Bulletin No. 1490-F and is called "Hog-Lot Equipment." You can get it either through this Station or by writing direct to the United States Department of Agriculture for it. The Department's address is Washington, D. C.

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THE FARM FORUM Tue., ~~July 29, 1929~~

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Poultry Meeting No.18: Buying Chicks.

SPEAKING TIME: 8 minutes.

ANNOUNCEMENT: Order in the Farm Forum! --- The question before the meeting is whether we shall buy baby chicks or hatch our own -- Before we put the question, however, we'd like to hear from "Chick" Barnes on this subject. More and more farmers are buying baby chicks; what do you think about that"Chick?"

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Well, there are certainly some real advantages in buying baby chicks.

Now, when I started in the poultry business, I started with baby chicks. I did it because it meant putting out less to begin with, than if I had bought breeding stock or bought eggs and hatched them on my own place.

At that time, I didn't have much room. I didn't have the space to keep breeding stock in good condition. They way I'm situated, on a farm now, I don't have to think about that so much. But I am still buying baby chicks. I've found there are other advantages in getting chicks from hatcheries.

In the first place, you can get them when you want them. I found that you couldn't always rely on having broody hens in a farm flock early in the hatching season. I tried setting hens for awhile. But that way, the chicks hatched too late.

You know late-hatched chicks don't grow so fast as early hatched chicks. Summer weather is harder on them. They fail to mature early enough in the fall to produce eggs when eggs bring the highest prices.

There are a good many advantages in brooding all the chicks in one or two flocks, instead of having a lot of small flocks of chicks hatched all through the spring and early summer like we used to. It takes a whole lot more work to hatch and look after all those small broods of chicks than it does to care for one or two bigger broods.

Why, it takes nearly as much time to care for a dozen chicks,

as it does for three or four hundred chicks. Then the chicks in the bigger flocks need only one kind of feed. With chicks of various ages, you need to supply a different ration for each age group. The earlier-hatched and bigger chicks are bound to crown the late-hatched, little chicks. That will prevent the little chicks from developing well.

With bigger flocks of chicks, you have a flock of pullets all the same age, instead of a mixed flock with some mature pullets, and some half grown, and some still in the chick stage.

Now I've noticed most of the farmers in my neighborhood don't give much attention to the selection of a good breeding flock, or to securing a male which will improve their flocks. At the hatcheries, breeding flocks are usually more carefully selected. Hatcheries pay more attention to selecting flocks headed by well-bred males.

One of the big advantages of buying baby chicks is that by buying good quality chicks you can often improve your flock. But don't be fooled by cheap chicks. The cheapest chicks are not likely to pay best. Buy your chicks from hatcheries that put out quality chicks. Buy your chicks from hatcheries that get their eggs only from carefully selected breeding flocks. It is also important that those breeding flocks be free from disease and that they practice good sanitation at the hatchery.

Of course, freedom from disease and good sanitation are important in all farm flocks. But they are especially important in hatchery flocks and in the hatchery itself. You can see how that would be. In handling thousands of eggs and chicks, the possibility of spreading disease is tremendous. --------- (As if interrupted)------What's that? -------- "How far can baby chicks be shipped?"

Oh, baby chicks can be shipped a good long way -------- Yes, and arrive in good shape. But, of course, I wouldn't go any further than I had to, to get the quality of chicks I wanted. Buy as near home as you can ----------(As if interrupted) "How are they shipped", did you ask?

They're just shipped in heavy pasteboard boxes. The boxes are built for that purpose. They are arranged with ventilation openings which can be adjusted to weather conditions. When the weather is cold, the chicks generate plenty of body heat to keep them comfortable in shipping boxes. --------(As if interrupted)"How?"

Either by parcel post or express. You can ship chicks either way. -----(As if interrupted) "Feed?" ------- You don't have to feed them. Chicks carry their own rations. A few days before chicks hatch they absorb the yolk of the egg. That gives them plenty of nourishment for two or three days after hatching. Chicks shouldn't be given any feed for the first 48 to 72 hours after hatching. That's what makes it possible to ship them any where they will reach their destination within 72 hours. Poultrymen don't need to worry about travel

rations for baby chicks. (As if interrupted) Yes? ----- Oh, beg pardon------ You wanted to know how to handle them after you get them.

In most cases, the directions go with the chicks. The hatcheries usually furnish directions for proper handling and care of the baby chicks.

You can get the names of hatcheries in this State from the State college of agriculture. There are still a majority of our chicks hatched on farms or by small poultry raisers. But, as our Chairman said, farmers are gradually changing from home hatching to the buying of baby chicks.

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ANNOUNCEMENT: This time next week we'll have an incubator expert on hand. He'll tell us how to operate an incubator. In the meantime, don't forget the other meetings. There's the big meeting tomorrow. Then the dairy meeting on Thursday. And the talk on prices Friday. Monday, of course, we always have our livestock meeting. Everybody be on hand.

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The Farm Forum (Regions 1, 2, and 3) Wed. January 30, 1929.

Crops and Soils Meeting No. 18: Grow Corn in Spite of the Corn Borer.

ANNOUNCEMENT: The Farm Forum will be in order! --- In the last two or three years we've heard a lot about the corn borer. We've heard enough to know it is worth while to keep track of him if we can. For that reason, we've asked an entomologist from the U.S. Department of Agriculture to tell us just where we stand now -- in relation to this corn borer ----- All right.

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Last season the corn borer advanced into new territory from 20 to 30 miles. That's the way it is with the corn borer. It is likely to be the same way this year and every year until it has spread to all sections favorable to its existence in the Corn Belt. This was natural spread, through the flight of the corn-borer moths. There is no possible way to stop such spread. Of course, we are fighting to suppress the borer and cut down the losses caused by the pest. And we are preventing its artificial spread in infested plants or plant products carried by rail, auto, or otherwise. This is what the corn-borer quarantines are for.

After the corn borer caterpillars spend this winter in old cornstalks, they'll take a little rest and then come out as moths, in early summer. By the flight of those corn borer moths, the corn borer will probably spread another 20 or 30 miles into new territory this coming summer.

The Corn Belt is going to get it. It seems almost as inevitable as Death and Taxes. The only way we could stop that spread, would be to kill off every last corn borer. -----

And what chance have we of doing that? -- To kill off every corn borer, we would practically have to make a complete desert of every city and town and all the country now known to be infested with corn borers. Even then we might overlook a corn borer or two. There might be some place we didn't know about.

You understand, corn borers don't absolutely have to have cornstalks to spend the winter in. Corn borer caterpillars can live in more than 200 kinds of plants. That's why I say, we'd have to make the infected county a desert to get rid of them.

Sounds gloomy, doesn't it?

But wait a moment! -- don't look so long-faced about it! --- Notice what the farmers in Kent and Essex counties, Ontario, did this past year. They increased their corn acreage 25 per cent. They had cut it 65 per cent on account of the corn borer. But they're learning to live with the corn borer. In the same fields where there was a complete destruction of the corn crop three years ago, farmers harvested a good crop of mature corn this past year.

We may not be able to stop the spread of the borer, but we can keep down the number of borers. By keeping down the number of borers, we can keep down the damage to corn. In that way, we can still raise corn in spite of the corn borer.

As you probably know, the corn borer came to this country in shipments of broomcorn from southern and central Europe, probably about 1910. Right then was when the beans were spilled. There wasn't any quarantine act then. Shortly after that, the corn borer got loose up here near Boston, Massachusetts, and here near Schnectady, in eastern New York, and over here in St. Thomas, in Ontario, Canada.

Anyway, we discovered corn borers near Boston in 1917. We got busy at once. But the corn borer had several years jump on us. Because of its nearness to the Corn Belt, the Canadian infestation is the one which had us most worried.

The territory invaded by the corn borer now includes southern and eastern Michigan, northeastern Indiana, the northern two-thirds of Ohio, and almost the entire states of Pennsylvania and New York.

Over most of that country, however, the corn borer infestation is very light. In fact, in much of that country, a corn borer is rather hard to find. There hasn't been any commercial damage except in a few fields along a very narrow strip, bordering Lake Erie.

When the corn borer ruined the corn over this area of 1,200 square miles in the southern part of Ontario, Canada in 1926, that showed us just what it could do. What it will do, depends largely on farmers --- (As if interrupted) What's that? --- "How about the scientists?" -- The Government? ----

Oh, the government scientists, State and Federal, are busy all right. They are doing what they can. State and Federal quarantines have prevented long distance spread through commerce; otherwise the whole corn belt might now be infected. During the past season, we had six Federal laboratories working on corn borer problems in infested territory in the United States. The Federal government has also made a thorough study of the corn borer in its native home. Federal entomologists are also searching Europe and the Orient for the natural enemies of corn borers -- insects and other parasites to prey on corn borers ----

But in the last analysis, if the corn borer is to be kept down, farmers will be the ones who must do it. The scientists can only find out the way to do it, and this is being done.

Fortunately the corn borer's habits will help, if we take advantage of them. As you know, the caterpillar stage of the corn borer is the one in which it does the damage. And don't mistake the common corn ear worm for a corn borer caterpillar. We've all seen those common corn ear worms and even native corn borers, all our lives. The European corn borer caterpillar is different. When full grown it is about one inch long, has a dark brown head and small brown spots on its body.

Now, that caterpillar lives through the winter in pieces of cornstalk

and stubble and sometimes in weeds and other plant material growing close to corn. That is where the corn borer makes its mistake. The habit of spending six months in comparatively useless parts of the corn plant, or in weeds, makes it possible to destroy the corn borer's winter quarters, without any direct loss.

In other words, the corn borer can be controlled by destroying all old cornstalks, stubble, and other pieces of the corn plant after they are of no further use on the farm. Farmers in infested regions must complete that clean-up before the first of June, because the corn borer changes to the moth form about that time and starts on its flight ----- (As if interrupted) What's that ---- What's the best way? --

Well, the surest way to destroy the corn borers is by burning. Plowing under all corn remnants also works if a clean job is done. Putting corn in the silo kills practically all the borers. So does husking and shredding. There seems to be some promise of adjusting the time of planting corn so as to dodge or cut down infestation by the borer.

From the results we have had with these methods of control, we now feel more hopeful that we can keep on raising corn even though the corn borer will most certainly keep on spreading in the Corn Belt. We'll grow corn in spite of the borer.

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ANNOUNCEMENT: It is encouraging to hear an expert tell us that we can live with the corn borer and still make a corn crop. That being the case, you men will be interested in being here this time next week. We are to have a talk on breeding better corn varieties. But remember, there are two more meetings this week. Tomorrow is dairy day, and Friday we overhaul the tractor.

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THE FARM FORUM

Monday, January 28, 1929.

NOT FOR PUBLICATION

Livestock Meeting No. 18 Livestock Feeding, Cafeteria Style.

SPEAKING TIME: 8 Minutes.

ANNOUNCEMENT: The Farm Forum will be in order! --- No, I should have said, the Farm Forum is in order. Evidently, you men know what's coming. It seems to me that all we have to do is mention feed to get out a crowd. ----- You see for yourself Mr. Feeder, the meeting is ready to hear what the U. S. Department of Agriculture thinks about feeding livestock, cafeteria style.

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Feeding livestock cafeteria style is letting them feed themselves. The stock help themselves, when ever they want to eat. The farmer fills his self-feeders and hay racks at odd times. Then he goes about his field work and doesn't have to stop for a feeding time. Any time is feeding time.

Self-feeders save work. Now, you know what that means. Labor is one of the chief items of cost in producing any farm crop. And these days, it is a troublesome item, too. Reliable farm help is scarce. Labor-saving devices which you can use on your farm will help lower costs of production. Everything else being equal, if you lower your costs of production you increase your profits.

Right here, I'd like to tell you about those tests we made on sows and pigs on our experiment farm. You know, the U. S . Department of Agriculture has an animal husbandry experiment farm at Beltsville, Maryland. Well, on that farm, we decided to investigate the possibilities of using self-feeders for sows and their pigs during the suckling period.

We found out that sows and pigs can be carried through the suckling period on self-feeders with less feed, and in better condition, with a saving of both labor and feed, and that the pigs can be put on the market at an earlier age. ----(As if interrupted) Yes? ---

Oh, yes. You see we had two lots of pigs in that experiment. One lot we fed by hand, and the other lot got their feed from self-feeders. And, as I say, both the sows and the pigs on the self-feeders looked better and were more thrifty than the sows and pigs in the hand-fed lots.

The feed cost, per 100 pounds of gain, was considerably less in the self-fed lots than in the hand-fed lots. Here are the figures: In the self-fed lots it took a total of 441 pounds of feed for each 100 pounds gain in weight by the pigs. In the hand-fed lots 603 pounds of feed were needed.

The average daily gain for the pigs on self-feeders was a pound and a fifth. For the hand-fed pigs it was less than a pound.

That gives you some idea of how self-feeders work with sows and suckling pigs. Of course, self-feeders have been used much longer with older animals. The stock help themselves. They make their own selection of feed. They balance their own rations, provided you put the feeds with which they can do it into the self-feeders.

You need not worry about their overeating. They seldom do that. And what's more, on self-feeders they keep growing steadily. Steady growth is essential for thrifty breeding stock and for well-fattened market stuff.

Then, besides the advantage of being able to fill the self-feeders and racks at odd times, when it is most convenient, there's another advantage. With self-feeders, the weaker and smaller animals get their chance at a full feed. Take hogs for example. All of you know some hogs are very hoggish. Big, aggressive hogs often crowd away the weaker animals and prevent their getting their share, when they are fed periodically in a trough. With a self-feeder, however, there is always a second-table well-supplied. The smaller, weaker animals have plenty of chance to get theirs when the big hogs are not around. They can bide their time and go to the feeder when the others have had their fill.

For very young animals it is a good plan to provide a creep, built so the old animals can't get in. In the creep, the young growing animals can be given feeds particularly suited to growth.----------(As if interrupted) --- What's that? ----"How do you build it?"

Well, I'd advise you to get Farmers' Bulletin No. 1490-F. It gives detailed directions for building hayracks, and creeps, and self-feeders for hogs on the farm. It is issued by the U. S. Department of Agriculture and can be had for the asking. It is called "Hog-Lot Equipment."

Hayracks are great savers of feed with both hogs and cattle. They prevent the animals from trampling so much hay underfoot. Not only that, but the leaves of alfalfa, and soy beans, or clover will collect in the bottom of the rack and so be saved. Those leaves are the most valuable part of the hay; but when hay is fed on the ground, or from stacks, the leaves are shattered and trampled and wasted.

In beef-cattle production, self-feeders are used mostly with young, growing stock; but nowdays they are being used more and more for fattening cattle for market.

Of course, with beef cattle the most critical time in fattening is the early part of the feeding period. You have to start the steer very gradually on fattening feeds. You can control that better, if you feed two or three times a day rather than let the animal get to an unlimited supply of feed in a self-feeder. However, as soon as the cattle get on full feed, you should have very little trouble with a self-feeder.

The self-feeders should be built with an overhanging roof to keep rain and snow out of the feed. They should hold enough, so you won't have to fill them often. With a movable board, held with thumbscrews you can regulate the flow of feed quite accurately. Of course, the size of the opening of the slot made by that movable board will depend on the character of the feed. In the case of self-feeders for hogs, many stockmen put the feeders on a platform, so as to prevent all possible waste of feed. But you can get all that from that bulletin I mentioned.

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ANNOUNCEMENT: The number of that bulletin was Farmers' Bulletin No. 1490-F and is called "Hog-Lot Equipment." You can get it either through this Station or by writing direct to the United States Department of Agriculture for it. The Department's address is Washington, D. C.

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THE FARM FORUM (Regions 4 and 5) Wed. Jan. 30, 1929.
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NOT FOR PUBLICATION

Crops and Soils Meeting No. 18: Weevils in Wheat.

ANNOUNCEMENT: The Farm Forum will be in order! ------All you wheat farmers down front please! ------ We have an Agricultural Department man here who wants to put a bug in your ear about how to get rid of the bugs in the wheat bin -- All right, Mr. Entomologist, you have the floor ----------

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Yes, the situation this year is a little unusual. That's why I'm here.

Under normal conditions, the insects in wheat are not active during the cold of winter. But conditions are not normal. Reports coming to our office show that there are more weevils in wheat in farmers' bins this year than usual. In many cases, there are so many weevils this year that they are causing the wheat to heat and become moist and cake over on the top.

That's the way it is with weevils. When they get very plentiful, they can cause wheat to heat. In that way, they furnish themselves with warmth. And being warm, they get busy -- they keep on feeding on the grain.

We've had so many reports of this kind, we thought that maybe you farmers here might be having trouble along this line. We thought it worth while to come out and remind you of a few of the things you may already know.

If insects are abundant and are causing your grain to heat at this season of the year, you should make the bins as tight as possible and then fumigate with carbon disulphide, or ethylene oxide, or the ethylene dichloride-carbon tetrachloride mixture ------ yes, that's as bad on the weevils as it sounds to you. That is, it is if it is used properly. If heating wheat is fumigated properly, the insects are killed and the grain gets back to normal temperature in a few days.

And if the heating wheat is not treated, the weevils may ruin the kernels before summer gets here. And remember, the cost of preserving the wheat in bins on the farm is very little compared with the value of the wheat. -------(As if interrupted) All right, I'm always ready to answer questions, if I can ------ Now, what was it? -------- "How do those chemicals work?"

You mean carbon disulphide and ethylene oxide and the ethylene dichloride-carbon tetrachloride mixture? Oh, they are all what we call heavier-than-air fumigants. By that, I mean those gases, being heavier than air, will sink down into the grain in a tight bin. By forcing out the lighter air, they smother and kill all the insects in the bin.

Yes, if the bins are thoroughly tight those gases can kill all stages of the insects -- the fully developed insects crawling between the kernels, the eggs already laid in the kernels, and the grubs and other forms of the insect inside the grains themselves.

Of course, if the bins are not thoroughly tight, the gases can't work so well. A wooden bin is seldom tight enough unless it is built of two thicknesses of tongue-and-groove lumber, well driven together, with heavy building paper between the layers. That also goes for the floor. Every crack will let gas escape. And the more gas that escapes the less effective the fumigation.

Watch the door. The average door is so loosely closed that a lot of gas escapes. You can stop that by sealing the door after you have put the fumigant on the wheat. Paste good paper over the cracks or rub clay into the cracks. Several thicknesses of newspaper put on with home-made flour paste will do. ------(As if interrupted) ---Yes ------ How you handle those gases?------

Either carbon disulphide or ethylene oxide or the ethylene dechloride-carbon tetrachloride mixture can be bought as liquids. They are shipped in tin cans or in steel drums. Of course, they are cheaper when bought in big steel drums than when bought in one pound cans.-------(As if interrupted)-- Oh, I beg your pardon -- You wanted to know how to apply the fumigant? -------

Why, just before you close and seal the door, put it on the wheat. It doesn't really make much difference how you do it, if the bin is tight enough to hold the gas. You can put it on by pouring it into shallow dishes like pie pans or soup plates set on top of the wheat. Some folks just pour the liquid over the top of the wheat. Others insist on sprinkling it on the grain from a flower-watering pot. I just throw it on from a water pail. I throw it with a sweeping movement: You don't want all the liquid in one spot you know.

And, for goodness sakes, don't do as I have heard of men doing. Don't just take out the cork and bury the liquid in the grain in the original can.

Some folks seem to think that the idea is to have the liquid evaporate slowly. That is not the idea at all. Try to get as quick evaporation as possible, so a lot of strong gas is formed quickly.

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It is always best to throw a tarpaulin or sacks over the grain. That helps hold the gas long enough to kill the insects.

But don't stick around. Get the liquid on and get out. You don't want to breathe too much gas. In case you have a weak heart, better not fool with the fumigants.

------(As if interrupted) The weevils? ----- From the germ of the wheat?

No! No! -- That old idea was exploded years ago. Insects don't develop from the germ of grain. Of course, it is sometimes hard to see how they get in. The entrance they make when very young is sometimes not as big as a point of a pin. Once inside, however, they burrow into the kernel and grow by eating out the inside of the seed. While it is cold, they stay quiet. But when it gets moderately warm they get busy.

And some of the most serious stored grain pests don't confine themselves to grain in storage. They can fly to wheat fields and lay their eggs on the ripening wheat or corn, and start more weevils in wheat when the grain goes into storage.

That's another good reason for tight bins and cribs and fumigation to kill the pests.

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ANNOUNCEMENT: Tomorrow our Farm Forum will consider the value of dairy herd improvement associations and Friday we will overhaul the farm machinery. And if any of you want more directions about the use of fumigants, write to the United States Department of Agriculture. Ask for Farmers' Bulletin Nos. 1260-F, "Stored-Grain Pest"; and 1483-F, "The control of Insect Pests in Stored Grain."

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THE FARM FORUM Thursday, January 31, 1929.

Dairy Meeting No. 18: Dairy-Herd Improvement Associations.

Speaking Time: 9 Minutes

ANNOUNCEMENT: Members will please find seats! --- This Farm Forum is supposed to be in order --- but it can't be as long as you men are milling around and blocking the aisles ------- That's better! --- Now we are going to hear from our cow testing friend from the U. S. Department of Agriculture. He is going to tell us about dairy-herd improvement associations ------ How many cows are you testing now?

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Well, there are about half a million cows now being tested in dairy-herd improvement associations in the United States.

But the work is just begun. Eventually, instead of half a million, we will have many million cows on test each year.

Dairy-herd improvement association work is gaining fast in popularity. The first association in this country began work in January 1906. In 1910, there were 40 associations. By 1920, there were 468. At the present time, there are more than 1,000 dairy-herd improvement associations doing business in this country.

Those associations are gradually but certainly lifting the dairy business to higher levels. At present, the average production of a dairy cow in this country is 4,600 pounds of milk a year. It is well within the range of possibility to raise the average production to 10,000 pounds of milk per year per cow.

As the population of this country increases, we must have more milk. We can get the additional supply most economically by increasing the production per cow.-------(As if interrupted) What? ---- "How are we going to do it?

Why, many of the herds now on test have already reached that 10,000-pounds-a-cow level. What many herds have done, others can do. How that will be done may be expressed in just three words: Feeding, weeding, and breeding.

And the best way to get the information on which to feed, and weed, and breed is through a dairy-herd improvement association.

You know the dairy-herd improvement association does not stop with careful feeding and weeding or close culling of the cows. It encourages intelligent breeding ---- (As if interrupted) "What do I call 'intelligent' breeding?"

Well, take the matter of selection of the bull. We used to select our dairy bulls on the basis of pedigree or conformation or both. That still is a very common way to select them. In the future, however, bulls will be selected on the basis of three things; pedigree, and conformation, and most important of all, on the milk and butterfat records of their daughters compared to the records of the mothers of those daughters.

I'm sure you understand. If the records of the first five daughters of any dairy bull are much better than the production records of their own mothers, then the chances are that bull will keep on bringing marked improvement when again mated with the same or similar cows. In other words, the way to make sure a dairy bull will improve your dairy herd is to select a dairy bull for your herd that has already brought improvement when used in a herd as good or better than yours.

More than 600 dairy bulls have been proved through dairy-herd improvement associations by a comparison of records that way. Some of those bulls are outstanding. For instance, each of the first 15 daughters of one dairy bull excelled their high-producing dam by a wide margin. I have the figures here which show just how wide a margin. The mothers averaged 386 pounds of butterfat a year. The daughters averaged 545 pounds. That's a gain of 159 pounds of butterfat per cow.

That's certainly a big gain, when you consider what high producers the mothers were. The point is that it is easy to find a purebred dairy bull that will improve a low-producing dairy herd. But is is downright hard to find a bull that will improve a herd whose production of butterfat is close to 400 pounds a year per cow.

As the average production of the cows in a dairy herd goes up, it gets harder to find a bull to head the herd. Of the first 500 bulls proved through dairy-herd-improvement association records, all those mated with cows whose average production was below 200 pounds a year brought increased production to the herd. But less than half of those mated to the 400 pound producers were able to boost production.

Some of those bulls that brought down the record were very good bulls. They just were not good enough bulls for the herds in which they were being used. In lower producing herds they might have brought a big improvement.

Yes, it is easy to find bulls that will improve dairy herds until the average production gets above 300 pounds. Beyond that it is almost a necessity to have a proved bull. The average in our dairy-herd improvement association herds is already almost up to the 300 pound level. Evidently, the proving of sires has come none too soon.

Proved bull work is just at its beginning. The time is coming when we shall prove thousands of dairy bulls each year. When that time comes, we may look for a big improvement in the production records of our dairy cows. ------(As if interrupted) Now then, I can answer your question. What? "How many," did you say?

Dairy-herd improvement associations are usually organizations of about 26 dairy farmers. They go in together and hire a trained man to test their cows for economical production of milk and butterfat. The tester visits the farm of each member of the association once a month. Usually he arrives about the middle of the afternoon.

That night and again the next morning, he weighs and samples the milk of each cow. And figures how much of each kind of feed she eats. During the forenoon of the day after he gets there, he tests the composite sample of each cow's milk for butterfat. Then he multiplies the one day's record of production of milk and butterfat and the one day's record of feed, feed costs, and income over cost of feed by the number of days in the month. Then he records all those figures in the herd book, and leaves the herd book with the farmer.

The farmer uses the figures as a basis for feeding according to known production. Those cows that do not respond to good feed and care are culled out of the herd and sent to the butcher. That close culling raises the average production per cow and almost always results in putting the herd on a paying basis.

Then, as I pointed out, the records are highly valuable in determining the value of the bull. By feeding, weeding, and breeding, dairy herd improvement associations are increasing the average production per cow. The U. S. Department of Agriculture has a leaflet which tells about this work. It is Leaflet No. 19, called "Improving Dairy Herds" write for it.

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ANNOUNCEMENT: Tomorrow we will have our usual meeting. There has been a little change in subject. Our Farm Engineer dropped in on us, so he is going to talk to us about overhauling the machinery. We will analyze prices later. Monday is our livestock day, and we expect to have up some market questions. Don't fail to be on hand.